Appendix A

Witness Qualifications Group 1

Witness Qualifications, Group 1

(Resumes are in Alphabetical Order of Witness' Last Name)

Testimony Section	Witness
Air Quality	Gary Rubenstein
Cultural Resources	James Bard
Facility Design	Scott Flake & Bob Nelson
General Condition COM-8: Construction and Operation Security Plan	Jim Shetler
General Project Development: Including Project Description, Facility Design, Power Plant Reliability and Power Plant Efficiency, Compliance Monitoring and Closure Plan	Colin Taylor & Kevin Hudson
Geological Hazards and Resources	Tom Lae
Hazardous Materials Handling	Karen Parker & Jerry Salamy
Hazardous Materials Handling: HAZ-8	Bob Nelson
Land Use	Kathryn Carrasco
Natural Gas Supply	Joseph Pennington
Noise	Mark Bastasch
Paleontological Resources	Lanny Fisk
Public Health	John Lowe
Radiological Conditions	Steve Redeker
Socioeconomics	John Carrier
Traffic & Transportation	Jeanne Acutanza
Transmission Line Safety & Nuisance	Gil Butler
Transmission System Engineering	Gil Butler
Visual Plumes	Gary Rubenstein
Visual Resources	Wendy Haydon & Thomas Priestley
Waste Management	Karen Parker
Worker Safety & Fire Protection	Patricia Danby

Jeanne Acutanza
Traffic Engineer/Project Manager

Education

B.S., Civil Engineering, Lehigh University, 1982

Professional Registrations

Professional Engineer, Washington, 1991
Transportation Engineer, California, 1989
Civil Engineer, California, 1985

Distinguished Qualifications

- Extensive experience providing project management
- Expertise in access studies, corridor, parking studies, and environmental documentation

Jeanne Acutanza is a transportation engineer with over 19 years of experience in transportation engineering, planning, access management, corridor studies, and traffic impact analysis. She is also experienced in program management and travel demand forecasting. She has facilitated many transportation plans and projects through public processes. Her transportation engineering skills are complemented by familiarity with regional and local transportation policies.

Major Access Studies

LaBree Road Interstate Access Request, Lewis County, Washington. Transportation and TSM analysis lead for the revision of interstate access request. The request, due to be complete in mid 2002, will be submitted to FHWA for approval. Working with Lewis County, WSDOT, FHWA, and area stakeholders.

SR 509/South Airport Link. Senior review for transportation discipline studies for the South Airport Link and SR 509 roadway project.

Ash Way Park and Ride, Lynnwood, Washington. Senior transportation review for the Access Decision Report for Sound Transit proposed Ash Way Direct Transit Access to I-5 including incorporation of WSDOT and FHWA comments.

Sound Transit Renton HOV, Renton, Washington. Transportation engineer for the project definition phase of the Renton HOV project. Screened concepts for a preferred alternative during the PE/ED phase. Assisting in the development of the Access Decision Report and Transportation Discipline Background Report in support of the North Renton HOV Direct Access.

Port Quendall, Renton, Washington. On-call project manager for facilitation, coordination, review and development of transportation circulation and access for a proposed 3 million square foot office development (Port Quendall). Major effort facilitated a multi-jurisdictional design team and obtained consensus on a potential solution. Provided on-call support for review assumptions of mode-split report.

Everett Multi-Modal Transit Station Access, Everett, Washington. Project manager for an accelerated study to identify and evaluate access modifications and revisions from Everett to Interstate 5 and to SR 2 due to the Everett Multi-Modal Station. Access concepts addressed HOV direct access, economic and land-use issues, and cost and feasibility.

Everett Port Access, Everett, Washington. As a subconsultant to Perteet Engineers, project manager for development of conceptual designs for access to the Port of Everett.

SR 520, Bel-Red Improved Access, Bellevue, Washington. Deputy project manager, working in a technical and public process, to assist in the development and evaluation of additional access on SR 520 to the Bel-Red industrial area between I-405 and 148th Avenue. The project will result in preliminary design and a draft Environmental Impact Statement.

Environmental Documentation

D Street Grade Separation, Tacoma, Washington. Transportation engineer for developing transportation discipline studies to support evaluation and selection of a preferred alternative for grade separation over the BNSF rail lines near the Port of Tacoma.

Delta Energy Center and Metcalf Energy Centers, California. Transportation engineer for developing transportation studies for the Calpine/Bechtel proposed energy facilities to support acceptance by the California Energy Commission. Provided professional expert testimony on transportation for the Metcalf Energy Center in San Jose.

Fort Lewis Base Modifications to Support BCT, Washington. Transportation engineer overseeing development of traffic and accident data to support an Environmental Assessment for BCT use at the base.

Southeast Issaquah Bypass, Issaquah, Washington. Deputy project manager for the development of preliminary design and a NEPA/404 Merger EIS for the Southeast Issaquah Bypass project.

South Sammamish Plateau Access Road, Issaquah, Washington. Transportation planner assisting in the development of comprehensive transportation technical analysis for the draft and final Environmental Impact Statement for the "SPAR" Road and the I-90/Sunset Interchange.

Swede Hill Interchange East-West Road EIS, Pierce County, Washington. Project engineer for developing future year traffic forecasts for an east-west road connecting the Swede Hill Interchange at SR 16 and Crescent Valley Drive NW.

Stillaguamish River Bridges and Approaches Replacement Environmental Impact Statement, WSDOT, Arlington, Washington. Project engineer responsible for the transportation discipline report through alternative alignments to Stillaguamish River crossings at SR 9 and SR 530.

Transit Studies and Transportation Plans

SR 519 Traffic Operations, WSDOT. Led an alternatives analysis of design options for improvements to SR 519 and surrounding roadways in the vicinity of Safeco Field in downtown Seattle. WSDOT was considering multiple design options to address recurring congestion, event traffic, ferry access, and heavy commercial vehicle volumes. The focus of

the project was an intensive analysis of design options, using two different simulation models to validate and verify results. A comprehensive set of statistical and sensitivity analyses was conducted.

Edmonds Pine Street Access Study. Project manager overseeing an extensive Origin-Destination study for the City of Edmonds to ascertain the impacts of, partial, or full closing of access, to Pine Street on overall circulation and ferry traffic circulation.

City of Woodinville Comprehensive Plan Update of Transportation Element, Washington. Project manager overseeing the update of land use, traffic forecasts, and capital improvements to address Woodinville's comprehensive growth management transportation planning needs.

Countywide Transportation Strategy Assistance, King County, Washington. Project manager overseeing the development of a new model for integrating and interfacing transportation information on the regional arterial network to support coordinated transportation system development.

Washington State Department of Transportation (WSDOT) Ferry Access Study. Transportation engineer overseeing the development of short-term tools and strategies to minimize impacts of ferry vehicles queuing on major arterial streets at each of Washington State Ferries terminals in Puget Sound including evaluation of appropriate strategies for the Edmonds Terminal. Strategies evaluated ranged from remote holding areas to signal modifications.

Kirkland Direct Access DEIS and Transit Guidelines for Regional Express, Washington. Project manager as a subconsultant to David Evans and Associates to assist in evaluating Sound Transit HOV direct access, transit center, and park-and-ride locations within the City of Kirkland. Oversaw the development of Regional Express Design Guidelines.

Everett Transit, Transit System Plan, Everett, Washington. Project engineer to assist in developing transit street classification, design criteria, transit LOS, and transit prioritization processes for Everett Transit.

Intercity Transit Park-and-Ride Plan, Thurston County, Washington. Project manager for the development of ultimate demand, location, sizing and citing criteria and policies to guide long-range park-and-ride needs in Thurston County.

Transportation Plans and Growth Management

Sammamish Mitigation Payment System, City of Sammamish, Washington. Project manager to assist the City in identifying potential applications of the King County Mitigation Payment System within the City as well as documentation to assist staff.

Mitigation Payment System Sammamish, Washington. Project manager for the review and development of City guidelines related to the application and use of the King County mitigation payments system within the City. Developed recommendations as to potential modification and application of mitigation payment system as new capital projects were developed and land use changed.

Concurrency Assessment Deer Park, Washington. Project manager for the development of capacity needs and the assessment of long range improvements for the City of Deer Park,

WA to meet growth management and concurrency requirements. Identified several strategies for the implementation of impact and mitigation fees for the City.

Puget Sound HOV Pre-Design Studies, I-405 & South King County, Washington. Task leader for the preparation of support documentation and traffic analysis to evaluate I-405 and south King County direct access HOV alternatives for the pre-design studies. Assisted in the application and development of travel-time savings measures of effectiveness.

Washington State Transportation Facilities and Local Comprehensive Plans. Project engineer to identify relationships between state transportation facilities and local agency comprehensive plans required by SHB 1928, particularly areas of access management. Developed recommendations to address consistency issues of and educational training for the State access management planning process.

Blaine Transportation Plan, Blaine, Washington. Project manager responsible for preparing the City of Blaine's Comprehensive Transportation Plan that specifically addressed alternative interchange designs and the impacts of increased traffic at the two international border crossings.

Pierce County Transportation Plan, Pierce County. Project manager participating in the preparation of the Pierce County Transportation Plan, Peninsula and North County focus areas. Developed planning level cost estimates for all Pierce County proposed projects.

South Hill Transportation Plan, Puyallup, Washington. Project engineer for preparation of proportionate share cost allocation of five- and ten-year improvements to local and regional development.

Mukilteo Transportation/Capital Facility Plan, Mukilteo, Washington. Project manager for establishing a Growth Management Act (GMA) compatible capital facility and transportation plan. Worked cooperatively with Mukilteo staff and public advisory committees to develop a creative approach and process for a six-year capital facilities plan and policies to guide the City.

1992 Cross Sound Transportation Study, Washington. Project engineer to assist in developing roadway and transportation infrastructure required to support the Washington State Transportation Commission study and the development of required transit and park and ride facilities.

Fort Meade Reuse, Maryland. Project engineer for preparation of a master transportation plan to support alternative land uses for the Fort Meade Military Base.

Santa Clarita Valley Transportation Study, California. Project manager for the preparation of a small area traffic study for build-out of the Santa Clarita Valley including development of land use and network alternatives.

Edmonds Ferry Terminal Highway Interface Study, Washington. Deputy project manager for overseeing development of near-term, low-cost strategies to address ferry queue issues on state highways. The study, for WSDOT, developed a "toolbox" of ITS, operations, enforcement and capital improvement strategies to test at Edmonds Ferry Terminal, which were also applied to other terminals. Study resulted in an FHWA earmark grant to implement ITS strategies.

Comprehensive Plan Update, Transportation Element, Woodinville, Washington. Project manager to assist Woodinville update the transportation element of their Comprehensive Plan including updating land use to 2020, updating deficiencies and projects, developing EMME/2-GIS interface and developing programs for monitoring TDM, pavement management, non-motorized modes, and intersection improvements and safety.

I-90 and I-5 ITS Corridor Studies, WSDOT. Project engineer for the study of ITS applications, specifically CVO ITS strategies, within the I-90 and I-5 corridors.

Parking Studies

King County Facilities Parking Management Study, Washington. Project manager responsible for developing parking management and demand management strategies at key King County facilities for short- and long-range implementation.

Intercity Transit Park-and-Ride Plan, Thurston County, Washington. Project manager responsible for the development of ultimate demand, location, sizing and citing criteria and policies to guide long-range park-and-ride needs in Thurston County.

WSDOT Public-Private Initiative Park-and-Rides, Washington. Assisted Quadrant Corporation on a submittal to WSDOT proposing expansion of existing park-and-rides using parking structures funded in part by privatization.

Memorial Mission Hospital, Asheville, North Carolina. Project manager for a parking study to assess the adequacy of short- and long-term parking within the hospital and to determine future parking demands for a proposed parking expansion.

Yale New Haven Hospital, New Haven, Connecticut. Project engineer for development of parking and access design criteria for a proposed hospital expansion.

Carr Park Rate Survey, Washington, D.C. Consultant responsible for a survey to assess competitive parking rates for parking garages throughout the city. Investigated the decline of parking revenues for Carr Park due to increased rail ridership, theft, development, and garage availability.

Corridor Studies

M Street, Auburn, Washington. Project engineer responsible for assessing short and long term benefits, capacity and operations of a new grade-separation proposed for the BNSF tracks continuing to Stampede Pass over M Street. Studies include identification of benefits to support grant funding applications.

Strander Boulevard/SW 27th Street, Renton, Washington. Project manager overseeing the development of environmental studies including traffic and transportation studies, project chartering and subsurface utility engineering as part of the project development phase of the Strander Boulevard/SW 27th Street. This HOV and freight focussed corridor study, included grade separation of BNSF and UPRR rail lines and connection to SR 167 HOV lanes.

Issaquah Highlands, Issaquah, Washington. Project engineer for the review and development of alternative arterial solutions of the Sammamish Plateau Access Road within the Issaquah Highlands Development.

Downtown Bellevue Access, Bellevue, Washington. Engineer assisting in the development of the Transportation Discipline Report for the Bellevue Downtown Access Study.

TSM Evaluation Methodology. Project engineer responsible for testing a methodology to quantify TSM benefits in relationship to capacity and costs.

Hayden-Road, Maricopa County, Arizona. Project engineer to evaluate alternative alignments and a no-build scenario of a new arterial street.

SR 525 Improvements, WSDOT, Snohomish County, Washington. Project engineer responsible for preparing the traffic analysis report and the transportation discipline report for the SR 525 corridor between SR 99 and SR 526. Special requirements included evaluating a matrix of alternatives for system performance using Transyt7F.

Houser Way, Renton, Washington. Project engineer responsible for traffic study and environmental documentation of Houser Way realignment providing circulation in the north Renton industrial area.

124th Ave NE, Kirkland, Washington. Project engineer responsible for developing future year forecasts of traffic on 124th Avenue NE.

East Marginal Way, Tukwila, Washington. Project engineer responsible for developing future year traffic forecasts for East Marginal Way.

SR 527, Washington. Project engineer responsible for developing alternatives and preparing traffic analysis of the SR 527 corridor for design and environmental impact.

Signal Improvement Justification, Los Angeles County, California. Project engineer to determine emissions reductions and timesavings from signal system improvements.

Calabasas Road/Parkway Calabasas Interchange, Calabasas, California. Project supervisor for development of conceptual alignments for phased ramp and bridge improvements on the Ventura Highway/Parkway Calabasas Road interchange.

McBean Parkway/I-5 Construction Phasing, Santa Clarita, California. Project supervisor for construction phasing plans during construction of the interchange improvement.

Aviation Boulevard TSM, South Bay Los Angeles, California. Project manager for comprehensive TSM document for Aviation Boulevard between Artesia Boulevard and Imperial Highway.

Site Planning and Traffic Impact Analysis, University of Washington Bothell/Cascadia Community College Collocated Campus, Washington. Project manager under contract to the City of Bothell to review the UW Bothell/Cascadia Community College traffic impacts for various phases of development.

Monte Villa Business Park, Bothell, Washington. Project manager for on-going studies to support phased development of this 500,000 square feet development for Quadrant.

Hart Properties. Project manager responsible for the development of a traffic impact study for a 10-acre site in Overlake.

Redmond West, Redmond, Washington. Project manager responsible for addressing traffic issues associated with the Redmond West annexation and rezone for Microsoft Corporation which required cooperatively working with Redmond to provide data collection, model evaluation, and database manipulation.

Redmond Town Square, Redmond, Washington. Project manager responsible for Master Plan and EIS development for the proposed 1.2-million-square-foot Redmond Town Square retail/ office project.

Microsoft World Headquarters, Buildings 24, 25, 26, and 27 Redmond, Washington. Project manager responsible for obtaining SEPA traffic mitigation approval for Buildings 24 through 27 located on the Microsoft campus. Worked cooperatively with Redmond staff to develop a traffic impact analysis standard.

Home Depot, Bothell, Washington. Project manager responsible for the Home Depot traffic impacts in the North Creek area of Bothell.

Monte Villa Business Park, Bothell, Washington. Project manager for updating the environmental impact statement and evaluating schedule of improvements to serve the project.

Issaquah Town Center, Issaquah, Washington. Project engineer responsible for preparing a traffic study for a proposed 450,000-square-foot commercial site.

Washington International University, Loudoun County, Virginia. Project manager for transportation planning a 23,000-student college within the mixed-use development of Lansdowne.

Port Potomac, Arlington County, Virginia. Project manager for transportation and traffic-engineering issues related to a proposal to consolidate 20,000 Navy employees within a single site of approximately four million square feet with access to metro-rail.

Life Sciences Center, Rockville, Maryland. Project manager for a traffic analysis of a research center being developed by Montgomery County.

Boulder, Stafford County, Virginia. Project manager for development of a master plan for a mixed-use neo-traditional town plan including 3,000 residential units and over one million square feet of commercial space.

Blooms Mill, Manassas Park, Virginia. Project manager for a traffic impact study to assess 150 dwelling units in Prince William County, Virginia.

Twin Bridges, Arlington, Virginia. Project manager for traffic studies and alignment alternatives for a 463,000-square-foot proposed office complex located adjacent to Interstate 395.

Professional Associations

Institute of Transportation Engineers (Member)
Women's Transportation Seminar (National Job Bank Chair)
Sub-Committee Chair TRB HOV Conference Plannning Committee

Publications

Access Management Planning and Growth Management Planning, ITE 65th Annual Meeting, 1995

Transportation and the Technology Research Park, August 1993 with Dr. Dennis Neuzil

Employment History

(1999-Present) CH2M HILL, Bellevue, WA, Project Manager Transportation Engineer

(1996-1999)Parsons Brinckerhoff Quade and Douglas, Seattle, WA, Sr. Transportation Planner/Engineer,

(1994-1996) JHK & Associates, Inc., Bellevue, WA, Project Manager Transportation Projects

(1990-1994) Entranco Engineers, Inc., Bellevue, WA, Business Unit Manager

(1989-1990) Gorove-Slade Associate, Inc., Washington, DC, Transportation Manager

(1982-1989) Los Angeles County Department of Public Works, Los Angeles County, CA, Supervising Transportation Engineer

James C. Bard
Cultural Resource Specialist

Distinguishing Qualifications

- Founded, owned and managed a cultural resource management consulting firm in the San Francisco Bay Area (1977-1993) - *Basin Research Associates, Inc*.
- Thirty years of archaeological experience - Western United States
- Over 25 professional publications in the field of cultural resources
- Developed Patination Dating Technique for Great Basin Petroglyphs

Related Experience

Dr. Bard is responsible for directing cultural resource management projects for CH2M HILL. He has extensive experience in prehistoric archaeology, cultural resource management and small business management. He has been extensively involved in the management of and/or participation in cultural resource investigations in compliance with the National Environmental Policy Act, the National Historic Preservation Act, and a variety of other federal cultural resource regulations. He has extensive experience in the implementation of cultural resource investigations to meet the requirements of the California Environmental Quality Act (CEQA) and the Washington State Environmental Policy Act (SEPA).

Dr. Bard is a cultural resources management specialist with a broad technical and geographical background in all aspects of cultural resource assessment and regulatory compliance. He has 21 years of professional experience in the design and management of cultural resource components of EAs, EIRs, and EISs for federal, state, and municipal agencies, private industry, the military, and scientific community. His specialties include program management, coordination of technical analyses, research design formulation, Section 106 compliance, Native American and general client liaison, human resources management, and marketing. Dr. Bard's research interests include California, Great Basin, and Columbia Plateau archaeology and ethnology, scientific applications in archaeology (archaeometry), cultural ecology, paleoenvironmental reconstruction, lithic technology and experimental archaeology, prehistoric rock art, archaeological methods and theory, and cultural resource management. Dr. Bard has completed projects located throughout California, the Great Basin, and Pacific Northwest, and has experience in the northwestern Plains (Alberta) and the Southwest (Arizona).

Prior to joining CH2M HILL in mid-1993, Dr. Bard held a 50 percent ownership and served as a Principal of Basin Research Associates, Inc. [BASIN] for more than 16 years. BASIN is headquartered in the San Francisco Bay Area and serves a broad array of clients throughout California and Nevada. Dr. Bard and a partner founded BASIN in 1977 while completing their graduate studies at U.C. Berkeley. During Dr. Bard's 16-year tenure with BASIN, over 1000 individual projects were completed by the firm. Dr. Bard has served as Principal or Co-Principal Investigator for over 350 cultural resource assessments associated with urban and rural land planning, the development of water, energy, and mineral resources, and urban development throughout northern and central California and Nevada.

James C. Bard

In addition, Dr. Bard served as Principal or Co-Principal Investigator for over 30 cultural resource mitigation programs throughout northern and central California, which involved site testing and data recovery operations. He served as a discipline specialist or project archaeologist for over 50 cultural resource mitigation programs throughout northern and central California and Nevada which involved site testing and data recovery, extended laboratory analysis, and/or specialized scientific analysis. Over the years, Dr. Bard has provided consultations to public agencies, private land developers, and architects and engineers.

Prior to founding BASIN in 1977, Dr. Bard worked as a teaching assistant in the Department of Anthropology, at the University of California, Berkeley, for such courses as Introduction to Prehistoric Archaeology, Science and Archaeology and Archaeology and Society (1974-1976). He was also a Guest Researcher, conducting archaeometric studies, at the Lawrence Berkeley Laboratory at U.C. Berkeley (1974-1979) and a Volunteer Assistant at the Pheobe Apperson Hearst Museum of Anthropology (formerly the Robert H. Lowie Museum of Anthropology) (1970-1972). He also served as a Volunteer Staff Archaeologist with the University of California, Los Angeles, Archaeological Survey (1969-1970).

Education

Ph.D., Anthropology, University of California, Berkeley (1979)
M.A., Anthropology, University of California, Berkeley (1976)
B.A., Anthropology, University of California, Berkeley (1974)

Professional Registration

Society for California Archaeology - Approved Consultant
Register of Professional Archaeologists (RPA)
California Lifetime Junior College Teaching Credential - Anthropology

Professional Activities

1990-present, Peer Reviewer, Journal of Field Archaeology
1986-present, Peer Reviewer, Society for Archaeological Sciences Bulletin
1977-present, Public Service, group/individual, career counseling, artifact/antiquities review, etc.

Honors and Awards

1970-79	Dean's Honors List, University of California, Berkeley
1974	A.B. with Distinction in General Scholarship, University of California, Berkeley
1976	Robert H. Lowie Scholarship in Anthropology, University of California, Berkeley
1985	American Committee for the Preservation of Archaeological Collections - Certificate of Appreciation

James C. Bard

Memberships in Professional Organizations

American Anthropological Association
American Committee for the Preservation of Archaeological Collections
Archaeological Institute of America
Association for Field Archaeology
Association for Washington Archaeology
Association of Oregon Archaeologists
California Committee for the Promotion of History
Great Basin Anthropological Conference
National Trust for Historic Preservation
Nevada Council of Professional Archaeologists
Skamania County (WA) Historical Society
Society for American Archaeology
Society for Archaeological Science
Society for California Archaeology
Society for Historic Archaeology
Register of Professional Archaeologists

James C. Bard

SUPPLEMENTAL INFORMATION
PROJECT EXPERIENCE

Energy/Power and Communication Transmission/Distribution

- Task leader for cultural resource studies to support Federal Energy Regulatory Commission relicensing of PacifiCorp's Klamath River Project, Klamath County, Oregon and Siskiyou County, California.

- Principal investigator for cultural resource assessment for Pacific Gas and Electric Company's Tri-Valley Project, Amador and Livermore Valleys, California. Surveys and siting studies for new electrical transmission generating capacity and delivery for Dublin, Pleasanton, and Livermore, California.

- Principal investigator for cultural resource assessment for Pacific Gas and Electric Company's Jefferson to Martin Upgrade Project, San Mateo County, California. Surveys and siting studies for new and replacement electrical transmission distribution for South San Francisco, San Mateo, and Burlingame, California.

- Principal investigator for cultural resource assessment for Pacific Gas and Electric Company's Walnut Creek-Alamo-Danville21 kV Distribution Planning Area, 2005 Capacity Increase Project, Contra Costa County, California. Survey and siting studies for new substations in Contra Costa County, California.

- Principal investigator for Calpine Natural Gas Company's Rio Vista Pipeline Project/Rio Vista Gas Unit, Solano and Sacramento Counties, California. Survey for new natural gas transmission line in central California.

- Project manager for the cultural resource program for Pacific Gas Transmission Company's Pacific Northwest Expansion Project in Oregon. This multi-year project (1993-1994), which is being licensed by the Federal Energy Regulatory Commission (FERC), requires compliance with a number of Federal and state cultural resource laws and regulations. The cultural resource program requires the coordination and management of a team of subconsultant specialists in archaeology, history, ethnology, ethnohistory, and other related disciplines; and coordination and liaison with Federal and state agencies and Native American Tribal groups. The program will include archaeological survey, testing, and data recovery operations, and implementation of a Native American participation program.

- Cultural resource specialist for Tuscarora Pipeline Company's application to the Federal Energy Regulatory Commission (FERC) for a Certificate of Public Convenience and Necessity in Oregon, California, and Nevada. Supervised subconsultant's preparation of the cultural resource element to the Resource Report, provided senior review, and identified subconsultants for subsequent work phases.

- Cultural resource specialist for SAI Soledad Energy, Inc.'s Soledad Biomass Power Plant cultural resource assessment. Served as Principal Investigator for a cultural resource assessment of a proposed biomass power plant in Soledad, Monterey County, California. Conducted research, supervised the field survey and prepared the technical report.

James C. Bard

- Cultural resource specialist for the Northwest Power Enterprises, Inc.'s Starbuck Gas-Fired Generating Plant Project, Columbia County, Washington. Served as Principal Investigator for a 120-acre survey and subsurface testing program of the proposed and alternative generating plant sites, assisted with Tribal consultations and evaluation of traditional cultural properties, and co-authored two technical reports.

- Cultural resource specialist for PPL Global (Pennsylvannia Power & Light) and Bonneville Power Company licensing studies for the Starbuck Power Plant Project, Columbia County, Washington. Served as Principal Investigator for 16 mile-long new 500 kV electrical tranmission line between Starbuck Power Plant and Lower Monumental Dam Substation; assisted PPL Global and BPA with consultations and traditional cultural properties studies with five Northwest Tribes.

- Cultural resource specialist for the preparation of a National Park Services Bulletin 38 "Traditional Cultural Property" (TCP) investigation for the proposed Lorella Pumped Storage Electrical Generating Plant, Klamath Falls, Oregon. Conducted interviews with Modoc tribal elders and prepared a preliminary TCP evaluation report.

- Project manager for the cultural resource inventory of 1600 acres along the Columbia River near Vernita Bridge at the U.S. Department of Energy's Hanford Site in Richland, Washington. Directed a large scale survey of DOE lands along the southern bank of the Columbia River using a predominantly Native American work crew composed of Wanapum, Nez Perce, and Yakama tribal members. Served as Principal Investigator and lead author of the technical report.

- Project manager for the cultural resource inventory of seven proposed basalt quarries at the U.S. Department of Energy's Hanford Site in Richland, Washington. Directed a 685 acre survey of proposed quarry site and served as Principal Investigator and lead author of the technical report.

- Project manager for the cultural resource inventory of the former Central Shops Complex and five Antiaircraft Artillery installations along Army Loop Road at the U.S. Department of Energy's Hanford Site in Richland, Washington. Directed the field investigations and served as Principal Investigator and lead author of the technical report.

- Project manager and principal investigator for the preparation of a historic context statement pertaining to the Ethnographic/Contact Period (Lewis and Clark 1805-Hanford Engineer Works 1943) for the U.S. Department of Energy's Hanford Site in Richland, Washington.

- Project manager and principal investigator for the preparation of a historic context statement pertaining to the Pre-1943 Settlement/Farmstead Period (Lewis and Clark 1805-Hanford Engineer Works 1943) for the U.S. Department of Energy's Hanford Site in Richland, Washington.

- Principal investigator for the preparation of a Traditional Cultural Properties Management Plan for the U.S. Department of Energy's Hanford Site in Richland, Washington, based on tribal elder testimony provided at a workshop sponsored by Battelle Pacific Northwest Laboratory.

- Co-principal investigator for the preparation of a Curation Strategy for the U.S. Department of Energy's Hanford Site in Richland, Washington - a document that will guide DOE's curation of Manhattan Project and Cold War artifacts and records. Recommendations by members of an

invited panel of nationally recognized museum professionals, that met at the curation workshop sponsored by Battelle Pacific Northwest Laboratory, are included in the strategy document.

- Senior consultant to the Bonneville Power Administration (BPA). Assist BPA with peer review, program management, and provide technical support to BPA's cultural resource program manager. Bonneville Power Administration, Department of Energy, Portland, Oregon.
- Principal investigator for the cultural resource clearance work associated with the construction of underground repeater boxes located in the Deschutes National Forest for U.S. West Communications Company, Bend, Oregon.
- Principal investigator for the cultural resource assessments of the Vansycle and Stateline Wind Farm Projects in Umatilla County, Oregon and Walla Walla County, Washington for ESI Energy, Inc. (Florida Power and Light), North Palm Beach, Florida and FPL Energy, Inc., Juno Beach, Florida. Vancycle and Stateline wind projects will produce 400 MW of electricity using 375 turbines.
- Principal investigator for the cultural resource assessment of the Maiden Springs Wind Farm Project near Prosser, Washington for Washington Winds, Inc. and Bonneville Power Administration. Maiden Springs Wind Farm project will produce up to 450 MW of electricity using up to 400 turbines.
- Principal investigator for the cultural resource assessment of the Grizzly Power Generation Project, Jefferson County, Oregon for Cogentrix, Inc. of Portland, Oregon. Grizzly Power Plant is a 980 MW gas-fired plant licenced by the Energy Facility Siting Commission of Oregon.
- Principal investigator for the cultural resource program for the relicensing of the Klamath River Project, Oregon and California for PacifiCorp, Portland, Oregon. This is a multi-year program that involves a full range of cultural resources studies, Tribal consultations with the Klamath and Shasta Tribes, and preparation of FERC-required compliance documents.
- Task leader for the preparation of the cultural resource element of the NEPA EIS for the Bond Falls, Bergland, Cisco Lakes, and Victoria Developments, Upper Peninsula, Ontonagon River, Michigan. EIS for the Federal Energy Regulatory Commission (FERC Project No. 1864).
- Principal investigator for the cultural resource assessment of the Delta Energy Center Project in Contra Costa County, California for Calpine/Bechtel, San Francisco, California. Delta Energy Center is a 700+ MW gas-fired power plant licenced by the California Energy Commission.
- Principal investigator for the cultural resource assessment of the Metcalf Energy Center Project in Santa Clara County, California for Calpine/Bechtel, San Francisco, California. Metcalf Energy Center is a 800 MW gas-fired power plant licensed by the California Energy Commission.
- Principal investigator for the cultural resource assessment of the Canyonville 43142 (OR 0051) Cellular Communication Tower Project in Canyonville, Oregon for American Tower Corporation, Houston, Texas.
- Principal investigator for the cultural resource assessment of the Teayawa Energy Center Project in Riverside County, California for Calpine Corporation, Pleasanton, California. Teayawa

Energy Center is an 800 MW gas-fired power plant licensed by the California Energy Commission.

- Principal investigator for the cultural resource assessment of the Modesto Irrigation District's Woodland II Generating Station project in Modesto, California for the Modesto Irrigation District, Modesto. WGS II is an 80 MW gas-fired power plant licensed by the California Energy Commission.
- Principal investigator for the cultural resource assessment of the East Altamont Energy Center Project near Tracy, California for Calpine Corporation, Pleasanton, California. East Altamont Energy Center is an 1100 MW gas-fired power plant licensed by the California Energy Commission.
- Principal investigator for the cultural resource assessment of the Central Valley Energy Center Project near Fresno, California for Calpine Corporation, Pleasanton, Calfornia. Central Valley Energy Center is a 800 MW gas-fired power plant licensed by the California Energy Commission.
- Principal investigator for the cultural resource assessment of the Rancho Seco Gas-Fired Power Plant Project near Sacramento, California for the Sacramento Municipal Utility District. Rancho Seco Gas-Fired Power Plant is a 1000 MW combined cycle power plant licenced by the California Energy Commission.
- Principal investigator for the cultural resource assessment of the Los Esteros Critical Energy Facility in north San Jose, California for Calpine Corporation, Pleasanton, California. Los Esteros Critical Energy Facility is a 180 MW gas-fired simple peaking facility licenced by the California Energy Commission..
- Principal investigator for the cultural resource assessment of the Anacortes Fiber Project, Skagit and San Juan Counties, Washington for CenturyTel of Washington, Inc., Gig Harbor, Washington.
- Principal investigator for the cultural resource assessment of the COB Energy Facility Site Certificate Application (Bonanza, Klamath County, Oregon) for a 1150 MW gas-fired merchant power plant for Peoples Energy Resources Corporation, Tempe, Arizona.

Transportation: Highways, Bridges, Railroads, Aviation

- Task leader for preparation of Historic Property Survey Report for the widening, rehabilitation, seismic retrofit and replacement of the Glendale-Hyperion Viaduct and Waverly Drive Bridge for the City of Los Angeles, California.
- Task leader for the cultural resources assessment of the SR-520 TransLake Washington Corridor Study, King County, Washington for the Washington Department of Transportation.
- Principal Investigator for the cultural resource review of the widening of Pacific Highway South (SR-99) from South 216th Street to Kent-Des Moines Highway (SR-516) for the City of Des Moines, Washington.

James C. Bard

- Task leader for the cultural resources assessment, inventory and evaluation, determination of eligibility and finding of adverse effect for the City of Prosser's Wine Country Road Reconstruction Project, Prosser, Washington.
- Task leader for the cultural resources assessment of the Lake Tapps Parkway Bridge Project in Pierce County, Washington for the Pierce County Public Works and Utilities Department, Tacoma, Washington.
- Task leader for the cultural resources assessment of the Anderson Island Ferry Landing Parking/Loading Lanes Project in Pierce County, Washington for the Pierce County Public Works and Utilities Department, Tacoma, Washington.
- Principal Investigator for the cultural resources assessment of Aurora Avenue North Multimodal Corridor Project for the City of Shoreline, Washington.
- Principal Investigator for the cultural resources assessment of SR 99 improvements for the City of Federal Way, Washington.
- Principal Investigator for the Archaeological, Historical and Architectural technical reports for the I-10 Truck Climbing Lane Project, San Bernardino County, California for the California Department of Transportation.
- Principal Investigator for the Historical and Archaeological Discipline Report for the East "D" Street Grade Separation Project in the City of Tacoma, Washington for Exeltech Consulting, Inc., Olympia, Washington.
- Principal Investigator for the Burlington Northern Santa Fe Railroad Company's McCarver Street to Reservation Center, Rail Improvement Project, City of Tacoma, Washington, for Exeltech Consulting, Inc., Olympia, Washington.
- Technical specialist for the preparation of a Finding of Adverse Effect – Pacific Power & Light Albina Service Center Building at 2126 North Lewis Avenue, Portland, Oregon for the Lower Albina Railroad Overcrossing Project for the City of Portland, Bureau of Planning.
- Principal Investigator and task leader for archaeological investigations at 35WN43 for the Beef Bend/Elsner/Scholls-Sherwood Roadway Improvement Project for Washington County, Oregon.
- Task leader for the cultural resources assessment for the Pittsburgh International Airport Environmental Assessment for the Allegheny County Department of Aviation, Pittsburgh, Pennsylvania.
- Task leader for the cultural resources assessment of the I-405 Corridor Study, King and Snohomish Counties, Washington for the Washington Department of Transportation.
- Task leader for the cultural resources assessment of the Kingston Park-and-Ride Lot Project, Kitsap County, Washington for Washington State Ferries, Washington Department of Transportation.

James C. Bard

- Task leader for the cultural resources assessment for the 13th Street Bridge at the Salinas River - Seismic Retrofit Project, Paso Robles, California for the City of Paso Robles, California.
- Task leader for the cultural resources assessment for the San Diego Airport Master Plan 2020 for the Port of San Diego, California.
- Task leader for the cultural resources assessment for the Link Central Light Rail Transit Project in Seattle, Tukwila and Seatac Washington for the Central Puget Sound Regional Transit Authority, Seattle (SoundTransit). Project involved archaeological, historical and cultural studies of a 23+ mile light rail corridor through metropolitan Seattle and consultations with Suquamish, Duwamish, and Muckleshoot Indian Tribes.
- Task leader for the cultural resources assessment for the Hoover Dam Bypass Project Environmental Impact Statement for the Federal Highway Administration in cooperation with the Bureau of Reclamation, the National Park Service, and the Arizona and Nevada Departments of Transportation. Project involved archaeological, historical and cultural studies of a new bridge and roadway project across the Colorado River near the site of Hoover Dam. Directed efforts of subconsultant (Bureau of Applied Research in Anthropology – University of Arizona) to conduct a formal traditional cultural properties field investigations with over 12 local Indian Tribes.
- Task leader for the archaeological survey and National Register of Historic Places eligibility testing and evaluation of archaeological sites 35-WA-43 for the Beef Bend, Elsner, Scholls-Sherwood Roads Improvement Project for Washington County, Oregon (in cooperation with the US Fish and Wildlife Service).
- Task leader for the cultural resources survey for the State Route 509/South Access Road Corridor EIS in King County, Washington for the Washington Department of Transportation, Seattle, Washington.
- Task leader for the cultural resources survey for the proposed intersection of U.S. Highway 99W and State Route SW 124th Avenue (Tualatin Road) in Washington County, Oregon for ODOT (Oregon Department of Transportation), Salem, Oregon.
- Task leader for the cultural resources record search for the widening of NE Glisan Street in Multnomah County, Oregon for LSI Logic Corporation, Gresham, Oregon.
- Principal investigator for the archaeological survey of Mt. Hood Parkway from I-84 to US 26, Wood Village, Troutdale, Gresham and Multnomah County, Oregon for ODOT (Oregon Department of Transportation), Salem, Oregon.
- Technical specialist for the preparation of an archaeological survey report for the replacement of the Mary's River (Harris Road) Bridge, Benton County and the Luckiamute River (Wildwood Road) Bridge, Polk County for ODOT.
- Technical specialist for the preparation of an archaeological survey report for the replacement of the Table Rock Bridge, Jackson County, Oregon for Jackson County and ODOT.
- Principal investigator for the archaeological survey and subsurface testing program for the Edmonds Crossing (Multimodal Ferry, Rail, Road) Project in the City of Edmonds, Snohomish

County, Washington for the City of Edmonds, the Washington Department of Transportation, and the Washington State Ferries.

- Task leader for the preparation of the SEPA (State Environmental Policy Act) Environmental Checklist and a NEPA Environmental Checklist (Documented Categorical Exclusion) for the Scenic Evergreen Trail in Clark County Washington for Clark County Department of Public Works, Vancouver, Washington.

- Task leader for the cultural resources record search and fatal flaw evaluation of the South King County Corridor HOV project for King County, Washington.

- Task leader for the cultural resources record search for the extension of the Hedding Street Bridge over the Guadalupe River in the City of San Jose, California for the City of San Jose and the Santa Clara Valley Water District.

- Principal investigator for the cultural resources evaluation for the Environmental Assessment of the Golden Gate Bridge Seismic Retrofit Project, San Francisco and Marin Counties, California, for T.Y. Lin International and the Golden Gate Bridge District.

- Co-principal investigator for the Santa Clara County Transportation Agency Section 106 Compliance for the Guadalupe Corridor Light Rail Project. This 5-year project included historic property surveys; determinations of National Register eligibility and effects; preliminary case reports; development of a Programmatic Agreement; preparation of overviews and research designs; planning and completion of multi-site excavation programs, including site testing and data recovery, monitoring of construction, emergency data recovery operations, multiple interagency, Native American and client coordination and public contacts, and preparation of multiple preliminary and final reports. Program has involved the administration of a culturally and politically sensitive contract with numerous subcontractors.

- Principal investigator for the Archaeological Survey Report for the earthquake-damaged Interstate Highway 880/Cypress (Freeway) Replacement Project for Parsons De Leuw, San Francisco, and the California Department of Transportation, District 4, San Francisco.

- Principal investigator for the Historic Property Survey Report and Archaeological Survey Report for the modifications to the existing diamond interchange at I-5/Louise Avenue in Lathrop, California. Project for the California Department of Transportation, District 10, Stockton.

- Principal investigator for Archaeological Survey Report for modifications to the existing diamond interchange at U.S. 101/Victoria Avenue in Ventura, California. Project for the California Department of Transportation, District 7, Los Angeles.

- Task leader for the archaeological surveys of Union Pacific Railroad Company's Second Mainline Track Projects, North Platte Subdivision, Morrill and Scottsbluff counties, Nebraska for Union Pacific Railroad, Omaha, Nebraska.

James C. Bard

Water: Wastewater Treatment, Freshwater Supply

- Principal investigator for the cultural resources assessment of the City of Centralia, Washington, new wastewater treatment plant and related facilities for the City of Centralia Utilities, Centralia, Washington.
- Task leader for preparation of Cultural Resources Management Plan for the Cedar River Water Treatment Plant at Lake Youngs, King County, Washington for Seattle Public Utilities, Seattle, Washington.
- Principal investigator for the cultural resources assessment of the Perris Desalter Project, Riverside County, California for the Eastern Municipal Water District, Perris, California.
- Principal investigator for the cultural resource assessment of the IID/SDCWA Water Conservation and Transfer Project, Imperial, San Diego, and Riverside Counties, California for the Imperial Irrigation District, Imperial, California.
- Principal investigator for the cultural resources assessment of the Burbank Boulevard Trunk Line Project for the Los Angeles Department of Water and Power, Encino, California.
- Principal investigator for archaeological investigations at the proposed Troutdale Wastewater Treatment Facility, Troutdale, Oregon for the City of Troutdale, Oregon.
- Task leader for archaeological monitoring of construction of the City of Corvallis Combined Sewer Overflow Project, Corvallis, Oregon.
- Principal investigator for the cultural resource inventory of the Hill Canyon Wastewater Treatment Plant Expansion and Upgrade, City of Thousand Oaks, California.
- Principal investigator for a limited subsurface archaeological testing program at site 45-CL-427 for the USACE Section 404 permitting of the Vancouver-Orchards and Andresan Road Forcemain Projects for the City of Vancouver, Washington.
- Principal investigator for a cultural resources assessment of the proposed Mexicali Wastewater Collection and Treatment Project in Imperial County, California for the International Boundary and Water Commission, United States and Mexico, U.S. Section, El Paso, Texas.
- Principal investigator for a cultural resources study for the Clearview Water Supply Project, Snohomish County, Washington for the Clearview Group (Alderwood, Cross Valley, Mukilteo and Silver Lake water districts and the cities of Everett and Lynnwood), Lynnwood, Washington.
- Archaeologist for the archaeological monitoring of geotechnical borings at the Columbia Blvd. Wastewater Treatment Plant for the City of Portland, Oregon.
- Principal investigator for a cultural resources study for the Tualatin Valley Water District/City of Hillsboro's North Transmission Line, Washington County, Oregon.
- Principal investigator for a cultural resources reconnaissance, subsurface archaeological testing, and construction monitoring programs for the proposed expansion of the Salmon Creek

Wastewater Treatment Plant, Clark County, Washington, for Clark County Department of Public Works.

- Principal investigator for a cultural resources reconnaissance of the Cozine Trunkline Replacement Project in the City of McMinnville, Yamhill County, Oregon, for the City of McMinnville, Oregon.
- Principal investigator for a cultural resources study for the City of Newport's South Beach Wastewater Treatment Plant and Conveyance System for the City of Newport, Lincoln County, Oregon.
- Principal investigator for a cultural resources study for the Coos Bay - North Bend Water Supply Project for the Coos Bay - North Bend Water Board. Coos Bay, Oregon.
- Principal investigator for the preparation of a cultural resources monitoring plan for the Callow Avenue Storm Drainage Separation Project for the City of Bremerton, Washington and the U.S. Navy's Puget Sound Naval Shipyard.
- Principal investigator for a cultural resources reconnaissance and archaeological monitoring for the proposed expansion of the Pacific Beach Wastewater Treatment Plant and installation of a community-wide sewage system in Pacific Beach/Moclips, Grays Harbor County, Washington for Grays Harbor County Public Works Agency.
- Coordinator of project report production for the East Springfield (Kelly Butte) Sewer Interceptor Restoration Plan for the Metropolitan Wastewater Management Commission, City of Springfield, Oregon.
- Principal investigator for a cultural resources study for the Santa Clara River Enhancement and Management Plan, Los Angeles and Ventura Counties, California for the Santa Clara River Project Steering Committee.
- Task leader for the preparation of the cultural resources element for the FEIR for the San Ramon Valley Recycled Water Program for the Dublin San Ramon Services District and the East Bay Municipal Utilities District, California.
- Principal investigator for the cultural resources survey and National Register evaluation for the Guadalupe River Project, City of San Jose, Santa Clara County, California, for the Sacramento District, U.S. Army Corps of Engineers.

Various

- Senior archaeologist for surveys and investigations for quarry development siting studies in Klickitat County, Washington for Ross Island Sand and Gravel Company, Portland, Oregon.
- Task leader/senior reviewer for the preparation of a Cultural Resources Management Plan for Arnold Air Force Base, Tennessee.
- Principal investigator for cultural resource compliance program for the Owens Lake Dust Control Project, Inyo County, California for the Los Angeles Department of Waster and Power.

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- Task leader for the cultural resources assessment for the proposed Arrowhead Development Corporation's commercial redevelopment (sustained development) of the historic Arrowhead Springs resort complex in San Bernardino County, California.
- Task leader for Inventory and Evaluation of Historic Buildings at the U.S. Air Force Academy in Colorado Springs, Colorado for the Department of the Air Force, 10th Space Wing, USAF Academy, Colorado.
- Principal investigator for the Penn Mine Long-Term Solution Project, Calaveras County, California. Third-party oversight and cultural resources management consulting services provided to the East Bay Municipal Utility District, Oakland, California with regard to the Penn Mine remediation program ordered by the Environmental Protection Agency, San Francisco.
- Principal investigator for the Class III Cultural Resource Inventory of the primary operations and landing site for the X-33 Advanced Technology Demonstrator at the US Army Dugway Proving Ground, Utah for the George C. Marshall Space Flight Center (NASA), Alabama.
- Principal investigator for the cultural resources investigations for siting a proposed steel mill facility at either Coos Bay, Oregon or Hoquiam, Washington for NUCOR Steel Corporation, Portland, Oregon.
- Principal investigator for the cultural resources element of the Hanford Reach Planning Study for Benton, Grant and Franklin County Commissions, Washington.
- Principal investigator and project manager for an archaeological reconnaissance for the proposed expansion of Nike (Shoe) Corporation's World Campus, Beaverton, Oregon for SRI/SHAPIRO, Inc., Portland.
- Task leader for the preparation of the cultural resource element for a Washington State SEPA Checklist for the proposed 190 acre Intel Corporation's Dupont, Washington research and development campus.
- Task leader for the fulfillment of Section 106 compliance investigation work for Intel Corporation's Heritage Reserve research and development campus, Fort Worth, Texas.
- Principal investigator for a cultural resources reconnaissance of a 1400 acre sugarbeet processing plant near Moses Lake, Washington for Pacific Northwest Sugar Company (Imperial Holly Sugar).
- Principal investigator and project manager for the preparation of the Base and Missile Cold War Survey of Malmstrom Air Force Base, Montana for the Department of the Air Force, Air Force Materiel Command, Brooks Air Force Base, Texas.
- Task leader for the preparation of Guidelines for Treatment of Historic Facilities at Selfridge Air National Guard Base, Michigan.
- Task leader for the preparation of Guidelines for Treatment of Historic Facilities at Selfridge Air National Guard Base, Michigan.

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- Task leader for the preparation of the cultural resource element for the Environmental Assessment of NASA's un-manned Space Shuttle landing sites at Mountain Home AFB, Idaho; Roosevelt Roads Naval Air Station, Puerto Rico; and on the island of Antigua.
- Senior reviewer for the cultural resource element of the Marshall Space Flight Center (Alabama), 1996 Environmental Resource Document update for NASA.
- Senior reviewer for the preparation of the Cultural Resource Management Plan for Arnold Air Force Base, Tennessee for the U.S. Air Force – Arnold Engineering Development Center.
- Task leader for the preparation of the cultural resource element for the Supplemental Environmental Impact Statement for the Evolved Expendable Lauch Vehicle (new "Space Shuttle") for Los Angeles Air Force Base, California.
- Task leader for cultural resources to support preparation of the Environmental Assessment for the National Park Seminary Historic District, Forest Glen Annex, Walter Reed Army Medical Center for the U.S. Army Corps of Engineers, Baltimore District.
- Task leader for the preparation of two screening assessments and monitoring plans to study the effects of acid rain on prehistoric rock art sites within the Wallowa-Whitman National Forest and the Columbia River Gorge National Scenic Area as part of the USDA Forest Service's air quality management plan for the Pacific Northwest Region.
- Principal investigator for the preparation of a cultural resources assessment and archaeological sample inventory of the Rio Mesa Master Plan Area and Environmental Impact Report, Friant, Madera County, California, for WILLDAN ASSOCIATES and the Madera County Planning Department.
- •Principal investigator for the preparation of a cultural resources assessment of the Bellevue Ranch Environmental Impact Report, Merced County, California, for WILLDAN ASSOCIATES and the City of Merced Planning Department.
- Principal investigator for the New Main Library Project archaeological monitoring/data recovery program and Historic American Building Survey (HABS) recordation of the foundations of the former 1906 earthquake-damaged City Hall, San Francisco, California, for the Bureau of Architecture of the City of San Francisco and O'Brien-Kreitzberg, San Francisco.
- Principal investigator for the HABS recordation of the historic Warm Springs Resort Site (A.A. Cohen Hotel), Fremont, California, for the City of Fremont and Hidden Valley Ranch Enterprises.
- Principal investigator for a large-scale site testing program in Pleasanton, California (CA-Ala-483), using experimental data recovery techniques and involving extensive public and Native American participation. Work sponsored by The DeSilva Group, Pleasanton.
- Principal investigator for a data recovery program in Westlake Village, California (CA-LAn-1521), for WILLDAN ASSOCIATES.

James C. Bard

PUBLICATIONS AND PRESENTATIONS

Cultural Resource Management. Presentation made at the 1997 Annual Conference of the Northwest Hydroelectric Association, Portland, Oregon. Invited Speaker. February 5, 1997.

With C.I. Busby and L.S. Kobori. *Archaeological Data Recovery of CA-Ala-060 Located on Route 580, Castro Valley, Alameda County, California*. California Department of Transportation, District 04, Public Information Office, San Francisco. 1989.

With C.I. Busby. *New Perspectives on the Archaeological Sequence in the Coyote Hills Area of the Southern San Francisco Bay: Sites, Components, and Pieces of the Puzzle*. Proceedings of the Society for California Archaeology 1:393-410. 1988.

With C.I. Busby, K.M. Nissen, et al. *Excavations at John Dryden Cave (NV-WA-3051), Smoke Creek Desert, Washoe County, Nevada*. Coyote Press Agency Report Series, Salinas. 1987.

With C.I. Busby and L.S. Kobori. *Excavations at Wildcat Gorge Cave (NV-HU-2258), Humboldt County, Nevada*. Coyote Press Agency Report Series, Salinas. 1987.

With C.I. Busby. *The Central California Prehistoric Culture Sequence: A Preliminary Review of Implications for Santa Clara Valley Prehistory*. Coyote Press Archives of California Prehistory 7:82-86, Salinas. 1986.

With A. Schilz, R. Carrico, J. Thesken, M. Waters, D. and M. Davy, R. Dezzani, and L. Kobori. *Archaeological Investigations in Southwestern Arizona: The APS Yuma 500-kV Transmission Line*. Westec Services, Inc. (San Diego) and Arizona Public Service Company (Phoenix). 1984.

A Report from the Santa Clara Valley (SCl-418). Society for California Archaeology Newsletter 16(3):7-8. 1982.

With C.I. Busby and J.M. Findlay. *A Cultural Resources Overview of the Carson and Humboldt Sinks, Nevada*. Bureau of Land Management Nevada, Cultural Resource Series No. 2, Reno. 1981.

With C.I. Busby and L.S. Kobori. *Test Excavations at Painted Cave, Pershing County, Nevada*. Bureau of Land Management Nevada, Contributions to the Study of Cultural Resources, Technical Report No. 5, Reno. 1980.

With J. Markman and C.I. Busby. *X-ray Diffraction Analysis of Pictograph Pigments from Painted Cave, Central Nevada*. Bureau of Land Management Nevada, Contributions to the Study of Cultural Resources, Technical Report No. 5, Reno. 1980.

With C.I. Busby and J.M. Findlay. *A Cultural Resource Overview of the Bureau of Land Management Coleville, Bodie, Benton and Owens Valley Planning Units, California*. Bureau of Land Management California, Cultural Resources Publications, Anthropology-History, Bakersfield. 1980.

With C.I. Busby and L.S. Kobori. *Ezra's Retreat: A Rockshelter/Cave Occupation Site in the North Central Great Basin*. Center for Archaeological Research at Davis No. 6. 1979.

With F. Asaro and R.F. Heizer. *Perspectives on the Relative Dating of Great Basin Petroglyphs by Neutron Activation Analysis*. Archaeometry 20(1):85-88. 1978.

With C.I. Busby. *The North Fork of the Little Humboldt River: Two Site Reports from North Central Nevada*. Kroeber Anthropological Society Papers 51-52:19-43. 1978.

With C.I. Busby and T. Clark. *The Pink Point Site: A Survey Collection of a Single Phase Occupation Site in the North Central Great Basin*. Kroeber Anthropological Society Papers 51-52:21-29. 1978.

With R.F. Heizer, A.B. Elsasser, K.M. Nissen, and E.D. Castillo. *Bibliography of California Indians: Archaeology, Ethnology and Indian History*. Garland Press, New York and London. 1977.

Possible New Patination Dating Technique Under Development at U.C. Berkeley. Lithic Technology 5(3):21. 1977.

With J.O. Davis and C.I. Busby. *Stratigraphic Situation of the North Fork Lithic Scatter (NV-Hu-301)*. Nevada Archaeological Survey Reporter 10(1):1-2. 1977.

With T.R. Hester, L. Spencer and C.I. Busby. *Butchering a Deer with Obsidian Tools*. Contributions of the University of California Archaeological Research Facility 33:45-56. 1976.

The Chronological Placement of the North Fork Lithic Scatter (NV-Hu-301) in the Culture History of the North Central Great Basin. Nevada Archaeological Survey Reporter 9(1):6-16. 1976.

With C.I. Busby. *The Manufacture of Petroglyphs: A Replicative Experiment*. Contributions of the University of California Archaeological Research Facility 20:83-101. 1974.

Professional Papers

With C.I. Busby. *Lithic Scatters and the Over-the-Horizon Backscatter Radar Project, Modoc National Forest, California*. Presented at the 22nd Annual Meeting of the Society for California Archaeology, Redding. 1988.

With C.I. Busby. *New Perspectives on the Archaeological Sequence in the Coyote Hills Area of the Southern San Francisco Bay: Sites, Components and Pieces of the Puzzle*. Paper presented at the 21st Annual Meeting of the Society for California Archaeology, Fresno, California. 1987.

With C.I. Busby and L.S. Kobori. *The Sierra Nevada: Exchange Corridor or Cultural/Biological Barrier?* Paper presented at the 18th Great Basin Anthropological Conference, Reno, Nevada. 1982.

With C.I. Busby and L.S. Kobori. *Synopsis of Archaeological Investigations at Wildcat Gorge Cave, Humboldt County, Nevada*. Paper presented at the 5th Annual BLM Cultural Resources Workshop, Reno, Nevada. 1982.

With C.I. Busby and L.S. Kobori. *Test Excavations at Painted Cave, Pershing County, Nevada*. Paper presented at the 16th Great Basin Anthropological Conference, Reno, Nevada. 1978.

Great Basin Petroglyphs: Relative Dating by Neutron Activation Analysis. Paper presented at symposium: Current Theory and Research in Great Basin Archaeology at the 43rd Annual Meeting of the Society for American Archaeology, Tucson, Arizona. 1978.

Significant Manuscripts

With R. McClintock. *Historic Property Survey Report (Positive), Widening, Rehabilitation, Seismic Retrofit, and Replacement of the Glendale-Hyperion Viaduct and Waverly Drive Bridge, City of Los Angeles, California (Highway Bridge Replacement and Rehabilitation Program).* For City of Los Angeles Department of Public Works, Bridge Improvement Program, Los Angeles, California. September 2002.

With R. McClintock and J. Sharpe. *Cultural Resources Technical Report, COB Energy Facility Site Certificate Application, Klamath County, Oregon*. For Peoples Energy Resources Corporation, Tempe Arizona. September 2002.

With R. McClintock and J. Sharep. *Cultural Resource Management Report, Jefferso-Martn 230 kV Transmission Project, San Mateo County, California*. Fo Pacific Gas and Electric Company, San Francisco, California. July 2002.

With R. McClintock. *Cultural Resource Assessment Report (Negative),Walnut Creek-Alamo-Danville21 kV Distribution Planning Area, 2005 Capacity Increase Project, Contra Costa County, California.* For Pacific Gas and Electric Company, San Francisco, California. April 2002.

With R. McClintock and J. Sharpe. *Archaeological Resource Management Report, Rio Vista Pipeline Project/Rio Vista Gas Unit, Solano and Sacramento Counties, California.* For Calpine Natural Gas Company, L.P., Folsom, California. April 2002.

With A. Gray and R. McClintock. *Cultural Resources Technical Report, Centralia Wastewater Treatment Plant and Related Facilities, Lewis County, Washington*. For City of Centralia Utilities, Centralia, Washington. February 2002.

With J. Nixon and J. Sharpe. *Cultural Resources Mitigation Plan, Cosumnes Power Plant, Sacramento County, California.* For the Sacramento Municipal Utility District, Sacramento, California. February 2002.

With R. McClintock, J. Sharpe and R. Harmon. *Archaeological Resource Management Report, East Altamont Energy Center, Alameda County, California*. For Calpine Corporation of Dublin, California and the Western Area Power Administration (Folsom, California) and the California Energy Commission (Sacramento, California). February 2002.

With C.I. Busby. *Final Cultural Resources Monitoring and Mitigation Plan, Los Esteros Critical Energy Facility, San Jose, California*. For Calpine c* Power of Pleasanton, California. January 2002.

Final Cultural Resources Program, Cedar Water Treatment Facilities Design-Build-Operate Project. For Seattle Public Utilities, Seattle, Washington. January 2002.

With C.I. Busby. *Cultural Resources Monitoring and Mitigation Plan for the Woodland Generation Station 2 Project and Linear Facilities, Modesto, California.* For Modesto Irrigation District, Modesto, California. December 2001.

With R. McClintock, J. Sharpe and A. Gray. *Cultural Resources Technical Report, Starbuck Power Project and Related Facilities, Columbia County and Walla Walla County, Washington.* For Starbuck Power Company, LLC of Bellevue, Washington and Bonneville Power Administration, Portland, Oregon. December 2001.

With J. Sharpe. *Cultural Resource Assessment of the Proposed Los Esteros Critical Energy Facility, Santa Clara County, California.* For Calpine Corporation of Pleasanton, California. September 2001.

With R. McClintock. *I-405 Corridor Program NEPA/SEPA Draft EIS – Draft Cultural Resources Expertise Report*. For Washington State Department of Transportation, Office of Urban Mobility, Seattle, Washington. August 2001.

With D. Gallegos. *Archaeological Survey Report, Construction of Eastbound Truck Climbing Lane from Ford Street to Live Oak Canyon Road, San Bernardino County, California.* For California Department of Transportation, San Bernardino, California. August 2001.

Historic Property Survey Report, Construction of Eastbound Truck Climbing Lane from Ford Street to Live Oak Canyon Road, San Bernardino County, California. For California Department of Transportation, San Bernardino, California. August 2001.

With R. McClintock. *Cultural Resources Assessment, Anacortes Fiber Project, Skagit and San Juan Counties, Washington*. For Century Tel of Washington, Inc., Gig Harbor, Washington. April 2001.

With R. McClintock. *A Phase I Archaeological Survey Report (Cultural Resource Assessment) Teayawa Energy Center Project, Riverside County, California*. For Calpine Corporation, Pleasanton, California. March 2001.

A Phase I Archaeological Survey Report (Cultural Resource Assessment), Eastern Municipal Water District, Perris Desalter Project, Riverside County, California. For Eastern Municipal Water District, Perris, California. February 2001.

With R. McClintock. *Historical and Archaeological Discipline Report: Anderson Island Ferry Landing Parking/Loading Lanes Project.* For Pierce County Public Works and Utilities, Transportation Division, Tacoma, Washington. February 2001.

With A. Bergstad. *American Tower Corporation: Canyonville 43142 (OR 0051) Cellular Communication Tower – Cultural Resourc*es. For American Tower Corporation, Houston, Texas. December 2000.

Lake Tapps Parkway Bridge – Cultural Resources. For Pierce County, Washington, Public Works and Utilities Department. December 2000.

With R. McClintock and A. Chapman. *Cultural Resoruces Assessment, Inventory and Evaluation, Determination of Eligibility and Finding of Adverse Effect, City of Prosser Wine Country Road Improvements Project, Benton County, Washington*. For Huibregste, Louman Associates, Inc. and the City of Prosser, Washington. December 2000.

With R. McClintock. *McCarver Street to Reservation Center Rail Improvement Project: Historical and Archaeologica*l (City of Tacoma, Pierce County, Washington). For Exeltech Consulting, Inc., Olympia, Washington. December 2000.

With R. McClintock. *Historical and Archaeological Discipline Report, East "D" Street Grade Separation, City of Tacoma, Pierce County, Washington*. For Exeltech Consulting, Inc., Olympia, Washington. November 2000.

With R. McClintock and C. Sundburg. *Cultural Resource Assessment, Aurora Avenue North Multimodal Corridor Project, City of Shoreline, Washington*. For City of Shoreline, Washington. October 2000.

With R. McClintock. *Cultural Resources Assessment, Stateline Wind Project, Umatilla County, Oregon and Walla Walla County, Washington.* For FPL Energy, Inc., Juno Beach, Florida. October 2000.

A Cultural Resource Assessment of the IID/SDCWA Water Conservation and Transfer Project, Imperial, San Diego, and Riverside Counties, California. For Imperial Irrigation District, Imperial, California. September 2000.

With R. McClintock, K. Demuth and E. Carter. *Finding of Adverse Effect, Pacific Power & Light Albina Service Center Building, 2126 North Lewis Avenue, Portland, Oregon.* For the Bureau of Planning, City of Portland, Portland, Oregon. June 2000.

With R. McClintock, J. Sharpe and J.L. Fagan. *U.S. 93 Hoover Dam Bypass Project: Final Environmental Impact Statement and Section 4(f) Evaluation, Archaeological Resources Survey Report.* Cultural Resources Assessment and Archaeological Survey Report to support preparation of the Hoover Dam Bypass EIS. For the Federal Highway Administration in cooperation with the Bureau of Reclamation, the National Park Service, and the Arizona and Nevada Departments of Transportation. April 2000.

With R. McClintock, A. Sienko, A. Bourdeax, P. Lawson and C. Skinner. *Archaeological Investigations at 35WN43, Beef Bend/Elsner/Scholls-Sherwood Roadway Improvement Project, Washington County, Oregon.* For Washington County Land Use and Transporation Agency, Hillsboro, Oregon. April 2000.

James C. Bard

With R. McClintock. *Cultural Resource Investigations on the Dennis Property Near Dallesport, Klickitat County, Washington.* For Ross Island Sand and Gravel Company, Portland, Oregon. January 2000.

With R. McClintock, S. Scott and A. Sienko. *Cultural Resources Investigation Report, Starbuck Gas-Fired Electric Generating Plant Project, Columbia County, Washington.* For Northwest Power Enterprises, Inc., Bellevue, Washington. January 2000.

With J. Cox and R. McClintock. *SR 509/South Access Road EIS Discipline Report: Historical and Archaeological Preservation.* For Washington State Department of Transportation, Seattle. January 2000.

With R. McClintock. *A Cultural Resource Assessment of the Kingston Park-and-Ride Lot Project, Kitsap County, Washington.* For Washington State Ferries, Washington Department of Transportation. November 1999.

With R. McClintock. *Archaeological Investigations at the Proposed Troutdale Wastewater Treatment Facility, Troutdale, Oregon.* For City of Troutdale, Oregon. October 1999.

With S. Courtois, K.Kraft, C. Wickwire and R. McClintock. *Link Central Light Rail Draft Transit Project, Seattle, Tukwila and SeaTac, Washington – Final Technical Report: Historic and Prehistoric Archaeological Sites, Historic Buildings and Structures, Native American Traditional Cultural Properties, Paleontological Sites.* For the Central Puget Sound Regional Transit Authority, Seattle, Washington. October 1999.

With R. Anastasio. Cultural Resource Assessment - 13th Street Bridge at the Salinas River - Seismic Retrofit Project, Paso Robles, California. For the City of Paso Robles, California. March 1998.

With J. Cox. A Phase I Cultural Resource Inventory: Hill Canyon Wastewater Treatment Plant Expansion and Upgrade, City of Thousand Oaks, Ventura County, California. For the City of Thousand Oaks, California. March 1998.

With R. McClintock and S. Christensen. *A Class III Cultural Resource Inventory: Primary Operations and Landing Site, X-33 Advanced Technology Demonstrator, U.S. Army Dugway Proving Ground, Utah.* For the National Aeronautics and Space Administration, George C. Marshall Space Flight Center, Alabama. April 1998.

With R. McClintock. *Archaeological Survey and Limited Subsurface Testing for the Proposed Vancouver-Orchards Force Main, City of Vancouver, Clark County, Washington.* For the City of Vancouver, Washington. 1997.

Cultural Resource Assessment of the Proposed Mexicali Wastewater Collection and Treatment Project, Imperial County, California. For the International Boundary and Water Commission, United States and Mexico, U.S. Section, El Paso, Texas. 1997.

With R. McClintock. *Cultural Resources Assessment, Vansycle Wind Farm Project, Umatilla County, Oregon.* For ESI Energy, Inc. (Florida Power and Light), North Palm Beach, Florida. 1997.

With R. McClintock. *A Cultural Resources Assessment of the Proposed NUCOR Steel Mill Site, Coos County, Oregon.* For US Army Corps of Engineers, Portland District and NUCOR Steel Corporation, Portland, Oregon. 1997.

With R. McClintock. *A Cultural Resources Assessment of the Clearview Water Supply Project EIS, Snohomish County, Washington.* For The Clearview Group (Alderwood Water District), Lynnwood, Washington. 1997.

With J.B. Cox and R. McClintock. *A Cultural Resource Survey of the Proposed Intersection of U.S. Highway 99W and State Route SW 124th Avenue (Tualatin Road), Washington County, Oregon.* For Oregon Department of Transportation. 1997.

With S.A. Scott and D.C. Schwab. *Base and Missile Cold War Survey: A Baseline Inventory of Cold War Material Culture at Malmstrom Air Force Base, Montana.* For Department of the Air Force, Air Force Materiel Command and USAF Center for Environmental Excellence, Brooks Air Force Base, Texas. 1997.

With D.C. Stapp. *Tools and Guidance: Developing a Curation Strategy for Manhattan Project and Cold War Artifacts at the Department of Energy's Hanford Site*. For Pacific Northwest National Laboratory, Richland, Washington. 1997.

With D.C. Stapp. *Curation Strategy for the Department of Energy's Hanford Site - Recommendations for Manhattan Project and Cold War Artifacts and Records.* For Pacific Northwest National Laboratory, Richland, Washington. 1997.

With R. McClintock. *Edmonds Crossing Discipline Report Supplement: Presence/Absence Testing for Archaeological Resources, City of Edmonds, Snohomish County, Washington.* For City of Edmonds, Washington State Department of Transportation, and Community Transit. 1996.

Tools and Guidance to Develop a Traditional Cultural Properties Management Plan for the Department of Energy's Hanford Site. For Pacific Northwest National Laboratory, Richland, Washington. 1996.

With J.B. Cox. *The Unocal Edmonds Bulk Fuel Terminal: A Determination of National Register Eligibility.* For City of Edmonds, Washington State Department of Transportation, and Community Transit. 1996.

With R. McClintock. *An Archaeological Survey of the Union Pacific Railroad Company's Second Mainline Track Project, M.P. 133.61 to 141.66, North Platte Subdivision, Scottsbluff County, Nebraska.* For Union Pacific Railroad. 1996.

James C. Bard

With R. McClintock and J.B. Cox. *A Cultural Resource Survey of the Tualatin Valley Water District's North Transmission Line, Washington County, Oregon.* For City of Hillsboro and the Tualatin Valley Water District, Oregon. 1996.

With R. McClintock and M. Tveskov. *A Cultural Resource Assessment of the Joe Ney/Upper Pony Reservoirs Expansion Project, Coos County, Oregon.* For the Coos Bay - North Bend Water Board, Coos Bay, Oregon and submitted to the U.S. Army Corps of Engineers, Portland District. 1996.

With R. McClintock. *An Archaeological Survey of the Union Pacific Railroad Company's Second Mainline Track Project, M.P. 103.84 to 109.08, North Platte Subdivision, Morrill County, Nebraska.* For Union Pacific Railroad, Omaha, Nebraska. 1996.

With R. McClintock and V. Wright. *A Cultural Resource Assessment of the Pacific Beach/Moclips Area Phase 1 Sewage Collection System Addition and Wastewater Treatment Plant Upgrade, Grays Harbor County, Washington.* For Grays Harbor County, Montesano, Washington. 1996.

With R. McClintock, J. Cox, V. Wright, S. Christensen, and J. Woodruff. *A Cultural Resource Assessment of the Pacific Northwest Sugar Company's Moses Lake Sugar Beet Processing Plant Site, Grant County, Washington.* Imperial Holly Sugar Company, Sugarland, Texas. 1996

With R. McClintock. *A Report on Cultural Resource Survey and Monitoring of a U.S. West Communications, Inc. Improvement Project No. 52-R-A-695 on the Deschutes National Forest.* U.S. West Communications, Inc., Bend, Oregon. 1995.

With R. McClintock. *An Archaeological Survey of the Proposed Highway 47 Bypass, From Council Creek to Quince Street, City of Forest Grove, Washington County, Oregon.* Washington County, Oregon. 1995.

With J.B. Cox. *A Historical Context Statement for the Pre-Hanford Period (Lewis and Clark 1805 - Hanford Engineer Works 1943) at the Department of Energy's Hanford Site, Benton County, Washington.*. Battelle Pacific Northwest Laboratories, Richland. 1995.

Screening Assessment and Monitoring Plan to Study the Effects of "Acid Rain" on Prehistoric Rock Art in the USDA Forest Service's Pacific Northwest Region (Region 6). USDA Forest Service. 1995.

Cultural Resources Report for the Santa Clara River Enhancement and Management Plan. Santa Clara River Project Steering Committee, Los Angeles and Ventura Counties, California. 1995.

With J.B. Cox and R. McClintock. *A Cultural Resource Assessment of the Edmonds Crossing Project, Snohomish County, Washington*. City of Edmonds, Washington Department of Transportation, Community Transit. 1995.

With R. McClintock. *A Cultural Resource Assessment of the Cozine Trunk Replacement Project, Yamhill County, Oregon*. City of McMinnville, Oregon. 1995.

With R. McClintock. *Presence/Absence Archaeological Testing at the Salmon Creek Wastewater Treatment Plant Expansion, Clark County, Washington.* Clark County Department of Public Works, Vancouver, Washington. 1995.

With R. McClintock. *An Archaeological Survey of Mt. Hood Parkway from I-84 to US 26, Wood Village, Troutdale, Gresham and Multnomah County, Oregon*. Oregon Department of Transportation, Salem. 1995.

A Historical Context Statement for the Ethnographic/Contact Period (Lewis and Clark 1805 - Hanford Engineer Works 1943) at the Department of Energy's Hanford Site, Benton County, Washington.. Battelle Pacific Northwest Laboratories, Richland. 1995.

With R. McClintock. *A Cultural Resource Reconnaissance of the Salmon Creek Waste Water Treatment Plant Expansion, Clark County, Washington*. Clark County, Washington. 1994.

With S.A. Scott and R. McClintock. *A Cultural Resource Inventory of Selected Areas within the Central Shops Complex at the U.S. Department of Energy's Hanford Site, Benton County, Washington*. Battelle Pacific Northwest Laboratories, Richland. 1994.

With R. McClintock and J. Cox. *A Cultural Resources Inventory of Proposed Basalt Quarry Sites at the Department of Energy's Hanford Site, Benton County, Washington*. Battelle Pacific Northwest Laboratories, Richland. 1994.

(Confidential Draft) *Report on Traditional Cultural Properties*. Lorella Pumped Storage Project, Klamath Falls, Oregon. Independent Hydro Partners, Minneapolis. 1994.

With S.A. Scott. *Cultural Resources Investigation Report for the KVA-Starbuck Gas-Fired Generating Plant Project, Columbia County, Washington*. CSW Energy and KVA Resources, Washington. 1994.

With R. McClintock. *Cultural Resources Assessment, Soledad Biomass Power Plant, City of Soledad, Monterey County, California*. SAI Soledad Energy, Inc., Santa Clara, California. 1994.

With D.M. Garaventa and others. *Limited Data Recovery Program, CA-CCO-309, The Rossmoor Site, City of Walnut Creek, Contra Costa County, California*. City of Walnut Creek, California. 1994.

With M.E. Tannam and others. *Archaeological Emergency Data Recovery/CEQA Documentation, CA-Ala-42, Pleasanton, Alameda County, California*. Alameda County Water Agency, Pleasanton. 1993.

With C.I. Busby and others. *Archaeological Site Testing Report, CA-Ala-483, Laguna Oaks Project, Pleasanton, Alameda County, California*. City of Pleasanton Planning Department and The DeSilva Group, Pleasanton. 1992.

With R.M. Harmon and others. *Archaeological Testing, CA-Sol-352, Vicinity of Rockville, Solano County, California*. Planning Department, Solano County. 1992.

With D.M. Garaventa and others. *Cultural Resources Investigation, Exploratory Geothermal Development, Federal Lease CA-11384, Sugarloaf Archaeological District, Inyo County, California*. Department of the Navy, China Lake. 1992.

With D.M. Garaventa and others. *Application of California Archaeological Resources Identification and Data Acquisition Program (CARIDAP) to Four Sites at the U.S. Marine Corps Mountain Warfare Training Center, Bridgeport, Mono County, California*. Department of the Navy, San Bruno. 1992.

With C.I. Busby and others. *Site Testing Program at CA-Fre-492, Fre-2263 and Fre-2264, Vicinity of Shaver Lake, Fresno County, California*. Planning Department, County of Fresno. 1991.

With M.E. Tannam and others. *Analysis of Native American Skeletal Remains Recovered During Emergency Disinterment at CA-SCl-128, the Holiday Inn Site, City of San Jose, Santa Clara County, California*. California Archaeological Site Inventory, Rohnert Park. 1991.

With R.M. Harmon and others. *Site Testing at CA-Lan-1521, Triunfo Canyon, City of Westlake Village, Los Angeles County, California*. California Archaeological Site Inventory, University of California, Los Angeles. 1991.

With C.I. Busby, R.J. Dezzani and others. *Completion of Archaeological Compliance, OTH-B Cultural Resources Program, Modoc National Forest, California*. Modoc National Forest, Alturas. 1990.

With C.I. Busby, D.M. Garaventa and others. *A Cultural Resources Overview and Historic Preservation Regulatory Analysis of Sandia National Laboratories Livermore Facility*. California Archaeological Site Inventory, Rohnert Park. 1990.

With M.R. Fong, A.M. Banet and others. *Analysis of Native American Skeletal Remains Recovered During Emergency Disinterment at CA-Ala-514/H, The Hidden Valley Ranch Site, City of Fremont, Alameda County, California*. California Archaeological Site Inventory, Rohnert Park. 1990.

With M.R. Fong, A.M. Banet and others. *Cultural Resources Assessment of Nelson Hill Quarry Project, Cordelia, Solano County, California*. California Archaeological Site Inventory, Rohnert Park. 1990.With D.M. Garaventa and others.

With J.G. James and others. *Analysis of Native American Skeletal Remains Recovered During Emergency Disinterment at CA-SCl-678, City of Milpitas, Santa Clara County, California*. California Archaeological Site Inventory, Rohnert Park. 1990.

James C. Bard

With R.L. Anastasio and others. *Cultural Resources Survey, North Coyote Valley Assessment District, Proposed Freeway Interchanges/Approaches Project, San Jose, Santa Clara County, California*. California Archaeological Site Inventory, Rohnert Park. 1990.

With M.R. Fong and others. *Archaeological Site Survey Record: CA-Ala-506, City of Oakland, Alameda County, California*. California Archaeological Site Inventory, Rohnert Park. 1989.

With C.I. Busby, K.M. Nissen and others. *A Cultural Resources Overview and Class III Inventory of Selected Areas of "Mainside" - NAS Fallon, Churchill County, Nevada in Support of Geothermal Development EIS*. Geothermal Program Office, NWC China Lake. 1989.

With R.L. Anastasio and others. *Archaeological Program at CA-SCl-204 and CA-SCl-312 for Proposed Improvements of the Expanded Edenvale Redevelopment Project, City of San Jose, Santa Clara County, California.* MS on file, California Archaeological Site Inventory, Rohnert Park. 1988.

With M.R. Fong and others. *Test Excavations at Three Rockshelter Sites, 26-Wa-3566, -3567 and -3568, Washoe County, Nevada*. Bureau of Land Management, Susanville. 1988.

With R.M. Harmon and others. *Over-The-Horizon Backscatter Radar Installation, Modoc National Forest, California, Archaeological Survey Report - ASR 05-09-421. Phase I Archaeological Survey: 1985-1986*. Modoc National Forest, Alturas. 1987.

With R.M. Harmon and others. *Over-the-Horizon Backscatter Radar Installation, Modoc National Forest, Archaeological Survey Report*. SRI International, Menlo Park. 1986.

With C.I. Busby and others. *Presence/Absence Testing Results for Archaeological Sites CA-SCl-300/302/288 and SCl-418 as Part of the Guadalupe Corridor Compliance with 36 CFR Part 800*. MS on file, California Archaeological Site Inventory, Rohnert Park (CASI-R). 1986.

With C.I. Busby and others. *Site Testing Report for Archaeological Site CA-SCl-137 as Part of the Guadalupe Transportation Corridor Compliance with 36 CFR Part 800*. MS on file, CASI-R. 1986.

With P.M. Ogrey, C.I. Busby, D.M. Garaventa and others. *Cultural Resources Monitoring Report of Orchard Properties Projects 515 and 1001 Including Sites CA-SCl-418, -553, -559, and -569H, San Jose, CA*. MS on file, CASI-R. 1985.

With R.L. Anastasio and others. *A Cultural Resources Assessment of the Proposed City of San Jose Enterprise Zone, Santa Clara County, California*. MS on file, CASI-R. 1985.

With C.I. Busby and others. *A Burial Recovered from CA-SCl-68 and Analyzed as Part of the Guadalupe Corridor Compliance with 36 CFR Part 800*. MS on file, CASI-R. 1985.

With C.I. Busby and others. *Site Testing Report at Archaeological Site CA-SCl-68 as Part of the Guadalupe Transportation Corridor Compliance with 36 CFR Part 800*. MS on file, CASI-R. 1985.

James C. Bard

With C. Busby, R. Dezzani and others. *Kennedy Meadows Cultural Resources Data Recovery Project*. Sequoia National Forest, Porterville. 1985.

Mark J. Bastasch
Noise

Education

M.S., Environmental Engineering, William Marsh Rice University, Houston, Texas
B.S. (cum laude), Environmental Engineering, Cal Poly San Luis Obispo

Professional Registrations

Professional Acoustical Engineer: Oregon
Institute of Noise Control Engineers (INCE)
Professional Environmental Engineer: Oregon
Professional Civil Engineer: Oregon
Certified Water Rights Examiner: Oregon
40-hour HAZWOPER Certified
8-hour HAZWOPER Site Supervisor Certification
12-hour Site Safety Coordinator Certification

Distinguishing Qualifications

- Specializes in industrial noise measurements, modeling and control, industrial compliance and permitting,
- Experience includes evaluation and measurements of existing noise levels; analysis of noise levels for no-build and build alternatives; feasibility, design, and siting analysis of noise barriers; and preparation of noise and vibration impact assessment reports
- Has conducted many noise studies in conjunction with National Environmental Policy Act (NEPA) documents and numerous state's energy facility siting requirements
- Has prepared acoustical analysis or expert testimony for more than 700 megawatts (MW) from wind generation facilities and 6,000 MWs from gas fired facilities

Relevant Experience

Mr. Bastasch is a registered engineer with more than 6 years experience conducting acoustical studies, environmental audits, and multimedia environmental permitting. Mr. Bastasch's acoustical experience includes preliminary siting studies, regulatory development and assessments, ambient noise measurements, industrial measurements for model development and compliance purposes, mitigation analysis, and modeling of industrial and transportation noise.

Representative Projects

- **Maiden Wind, Prosser, Washington.** Acoustical technical lead. Prepared operational and construction noise assessment of a 300-MW wind generating facility for local, state, and federal authorities. Tasks included ambient noise measurements and detailed modeling of both NEG Micon and Enron Wind Turbines. Developed mitigation and permitting strategy that gave client flexibility to postpone final turbine selection.

- **Stateline Wind Project, Oregon and Washington.** Acoustical technical lead for a 263-MW wind farm in northeast Oregon (Umatilla County) and southeast Washington (Walla Walla County). Tasks included monitoring at existing Vestas wind turbines and proposed turbine locations, authoring a noise impact evaluation, and preparing environmental documentation to comply with both Oregon and Washington standards.

- **Stateline Wind Expansion, Oregon.** Prepared acoustical analysis documenting compliance with Oregon's 10-decibel degradation standard for an additional 40 MWs. Assisted legal counsel with regulatory interpretation and assessment**.**

- **Klondike Wind, Northwestern Wind Power, Oregon and Washington**. Northwestern Wind is looking at several sites in three counties in Washington and Oregon. It currently has a 25-MW pilot project in Sherman County, Oregon, which uses the Enron Wind 1.5-MW generators. Subsequent phases would add up to 400 MW of wind generation. Provided preliminary acoustical modeling and permit assistance at the local and state levels and developed a noise monitoring protocol. Helped draft alternatives for revisions to the state noise standard as it applies to wind energy facilities.

- **Calpine Gilroy Peaker Program, Calpine Corporation, Dublin, California.** Project manager and acoustical lead for Calpine's Peaker Program. Prepared California Environmental Quality Act level noise assessments for more than 10 LM6000-based peaking power plants located throughout northern California. Developed a flexible and streamlined program to accurately and quickly prepare acoustical assessment. Tasks included regulatory review and interpretation of city and county noise standards, ambient measurements and analysis, development of a standardized model that included several levels of optional mitigation and field verification at operating facilities, and regulatory negotiating.

- **Metcalf Energy Center, San Jose, California.** Acoustical technical lead for a 600-MW power plant. Tasks include the following: evaluating and measuring background noise levels; modeling and comparison of expected noise levels with the City of San Jose, County of Santa Clara standards, and the California Energy Commission's (CEC) 5 dBA over background guideline; recommendations to acquire additional property; preparing Application for Certification submitted to the CEC; regulatory negotiation; and review of Conditions of Certification, testimony at public hearings, and CEC evidentiary hearings, which included detailed cross-examination. Successful negotiations saved the client more than $5 million in capital expenditures.

- **Los Esteros Critical Energy Facility, San Joaquin Valley Energy Center, East Altamont Energy Center, Delta Energy Center, Calpine Corporation, California.** Services similar to Metcalf Energy Center. Prepared Applications for Certification or testimony.

- **Cosumnes Power Plant, Sacramento Municipal Utility District, California.** Prepared Application for Certification and amendments to include a natural gas transmission line and required gas compressors.

- **Peoples Energy Resources Corporation (PERC), COB Energy Facility, Klamath County, Oregon.** PERC proposes to construct and operate a 1,150-megawatt dual-cycle gas-fired generation facility in southern Oregon, approximately 3 miles south of

Bonanza. Because of the project's size, it must go through Oregon's Energy Facility Siting Council review, a rigorous and lengthy process that requires evaluation of a broad range of environmental issues. Prepared site certificate for the plant and associated transmission line.

- **Power Projects, Confidential Client, California.** Prepared detailed regulatory analysis of all projects permitted and currently being permitted by the State of California, including Altamont Pass Wind Farm.
- **Starbuck Power Plant, PPL Global, Starbuck, Washington.** Acoustical technical lead for a proposed 600-MW power plant and transmission line. Tasks included monitoring, modeling, and preparation of required environmental documentation.
- **Grizzly Power Plant, Cogentrix, Madras, Oregon.** Prepared site certificate application.
- **Power Plant, Confidential Client, California.** Acoustical technical lead for an internet data center and an onsite 50-MW power plant, chiller plant, and backup diesel generators. Tasks include monitoring, negotiations with the city's consultant, and preparing an environmental impact report.
- **Power Plant, Confidential Client, Chicago, Illinois.** Acoustical technical lead for preliminary power plant siting study. Tasks included review and summarization of all applicable laws, ordinances, regulations, and standards.
- **Multiple Landfill Clients, Washington and California.** Acoustical consultant to a municipal landfill design team. Tasks included evaluating background noise levels and applicable laws, ordinances, regulations, and standards to determine setback requirements for facility expansion.
- **Various Transportation Projects.** Acoustical technical lead for numerous transportation projects in California, Colorado, Oregon, Washington, Alaska, and Idaho. Tasks include monitoring, modeling, and mitigation recommendations in accordance with all applicable laws.

Testimony Qualifications

Gilbert Butler

I am a Principal Transmission Planning Engineer for the Sacramento Municipal Utility District (SMUD). My business address is 6301 S Street, Sacramento, California.

I earned my Bachelor of Science degree in Electrical Engineering from the University of California at Davis in 1975, and have actively participated in the electric utility industry as an electrical engineer for Sacramento Municipal Utility District for the last 28 years.

My primary responsibility for the last 23 years has been transmission planning, and has included substantial involvement with Western Electricity Coordinating Council (WECC), formerly Western Systems Coordinating Council (WSCC). WECC is a regional forum for actively promoting the development of planning and operating reliability criteria and policies, the monitoring of compliance with these criteria and policies, and the facilitation of a regional transmission planning process. The WECC region includes all or part of the 14 Western States, the Provinces of Alberta, and British Columbia, Canada and portions of northern Mexico and British Columbia, Canada. Membership in the WECC includes 98 full members, 8 commission members and 12 affiliate members comprised of electric utilities, independent power producers/marketers and other organizations having an interest in the reliability of interconnected system operation and coordinated planning.

I have actively participated in the WECC as a Technical Studies Subcommittee member, Modeling Work Group member, Program Work Group chair and vice-chair, Program Users Work Group member, Rating Methods Task Force member, and am presently a member of the Reliability Subcommittee.

I previously testified before the Federal Energy Regulatory Commission on behalf of the California Parties in the action against Sierra Pacific Power Company regarding the Reno to Alturas Transmission Project.

Kathryn Vanderslice Carrasco
Environmental Scientist

Education

B.S., Applied Ecology, University of California, Irvine
Certificate, Hazardous Materials Management, University of California, Irvine

Professional Registrations

Distinguishing Qualifications

- Experienced in implementing and assisting in corporate environmental compliance programs
- Has developed regulatory compliance programs for electric utility companies
- Has managed extensive internal audit findings for an electric utility company
- Has produced stormwater pollution prevention plans for various businesses in Southern California

Relevant Experience

Ms. **Carrasco** has experience in developing regulatory compliance programs for electrical utilities. She has first-hand knowledge of regulatory and business impact issues associated with electric utility compliance; she is experienced in dealing with the aspects of designing corporatewide compliance programs, including the development of standardized metrics to measure company environmental compliance. In addition, Ms. **Carrasco** is very familiar with the process of deregulation of the electric industry from an environmental standpoint.

Representative Projects

Landfill Constraint and Permit Analysis

Developed environmental constraints for landfill siting in Alameda County. The project included identifying necessary permits, agency review schedules, and costs associated with facility.

Environmental Aspects of Utility Deregulation

Coordinated several aspects of environmental requirements for deregulation at Southern California Edison (SCE). Ms. **Carrasco** managed the timely submittal to new owners of divested generating stations of all environmental permits and plans. She negotiated with regulatory agencies for interim status permits and for smooth permit transfer as stations were sold. She ensured the transfer of all permits was proceeding in a timely manner for both new owners and retained SCE assets. Ms. **Carrasco** assessed prorated operating permit fees for new owners and SCE to ensure permit costs were attributed equitably to both parties. Knowledge of permit status and contacts with regulatory agencies for all stations was invaluable to the transition.

Emergency Response Plans

Assessed the applicability of a consolidated, emergency reporting program for SCE through a federal and state One Plan. The One Plan combines the emergency response reporting requirements for several reports. Ms. **Carrasco** participated as the industry representative in agency workgroup meetings to ensure that larger industries would benefit by the program. She assisted in initiating One Plan format with the pipeline operations business unit, resulting in consolidation for 15 pipeline facilities of five plans each to two plans.

Corporate Environmental Compliance Tools

Implemented and assisted corporate environmental compliance programs across business units after determining corporatewide compliance issues. Examples include database for tracking and measuring permit compliance, support in environmental self-assessments, centralized hazardous waste management systems, and extensive online environmental reference manual. Ms. **Carrasco** enabled compliance issues to be addressed in a centralized and consistent manner.

Environmental Legislative and Regulatory Review

Reviewed and analyzed impact to the electric utility business of impending environmental legislation. Ms. **Carrasco** analyzed proposed regulation for fiscal, operational, and administrative impact to corporation and business units. She acted as the SCE representative at the Department of Toxic Substances Control (DTSC) workgroup meetings for revamping of a hazardous waste manifest system. She successfully communicated impact of change on everyday operations, while working with the agency to meet enforcement needs.

National Pollutant Discharge Elimination System Underground Vault Permitting

Procured general National Pollutant Discharge Elimination System (NPDES) of underground utility vaults per Pollution Prevention Guidelines. The project required field testing of discharge water, analysis of results and application, and subsequent annual monitoring within several Regional Board jurisdictions. Additionally, Ms. **Carrasco** has assisted in other NPDES compliance issues, including collecting samples for hydrostatic test samples. She studied the effect of hydrostatic test water discharge to a local creek. The project resulted in obtaining less-stringent effluent limitation for chlorine from the Los Angeles Regional Board. NPDES work resulted in business units being able to continue normal business activities under the permit, with minimal impact to everyday operations.

Internal Auditing

Managed extensive internal audit findings for an SCE facility. Ms. **Carrasco** coordinated responsibilities of operations supervisors and regulatory experts to respond to audit findings in a timely manner and permanently alleviate deficiencies. She was also responsible for developing corrective action for hazardous waste and fee audit findings. She assisted in other preaudit facility self assessments. Ms. **Carrasco** worked with facility operators to improve environmental compliance and self-correct any deficiencies.

Source Reduction

Conducted research to complete source reduction requirements for qualifying facilities at SCE. The project required research of alternative recycling methods for large waste streams, including blast grit/duct sweep and process oil filters. The facility successfully complied with source reduction requirements.

Environmental Personnel Compliance Communication

Contributed to bimonthly forums and monthly publications intended to keep environmental business unit staff and hazardous waste operators current on regulatory programs affecting their business and compliance from a corporatewide standpoint.

EPA Regional Haze Project

Served as project assistant on multimillion dollar Environmental Protection Agency (EPA) regional haze project at the Grand Canyon. Ms. **Carrasco** tracked project expenditures to ensure targeted project costs were met. She audited subcontractors' project costs and saved the project $15,000 in misallocated time.

Federal and State Regulatory Reporting for Hazardous Waste Generation

Submitted several federal and state reports and fees for all facilities at SCE through automated reporting programs. The project required coordination of effort among all affected business units and approximately 300 facilities. Reports include EPA Biennial Hazardous Waste Report, Source Reduction Review (SB-14), Excluded Recyclable Material Report (AB 1475), DTSC Hazardous Waste Generator Fee, and Manifest/ EPA ID Number Verification Fee. Ms. **Carrasco** completed all reports and fees in a timely manner, and improved the reporting process through further automating many of the reporting tasks.

Automated Regulatory Reporting Systems

Served as regulatory specialist for conversion of automated reporting programs for the EPA Biennial Hazardous Waste Report and South Coast Air Quality Management District (SCAQMD) RECLAIM Reporting. The project required acting as intermediary between the client and the software expert. Ms. **Carrasco** ensured regulatory specifications were met and the client could efficiently use the automated system.

Stormwater Pollution Prevention Plans

Produced stormwater pollution prevention plans for various businesses in Southern California under contract with Engineering, Science and Technology, Inc (EST, Inc.). The project required a site walk, preparation of a plan and monitoring program, and collaborating with the engineer for technical drawings.

Industrial Wastewater Discharge

Prepared industrial wastewater surcharge for Formosa Dyeing, Inc. in Santa Fe Springs, under contract with EST, Inc. Ms. **Carrasco** analyzed data to report actual effluent levels. She negotiated with County Sanitation Districts of Los Angeles County to accept a modified surcharge based on actual discharge data. She also conducted a pilot study to improve effluent standards and reduce surcharge costs.

John Carrier

Project Manager

Education

J.D., Brigham Young University
M.B.A., Administration, Brigham Young University
B.A., Sociology, Brigham Young University

Professional Registrations

State Bar of California, No. 99175

Distinguishing Qualifications

- More than 19 years of experience in environmental permitting and power plant licensing

- Involved with the $10 million, 3-year California Energy Commission (CEC) Siting Program at three levels: Program Management, Project Coordination, and Technical.

Relevant Experience

Mr. Carrier combines more than 19 years of experience in environmental permitting with a strong background in power plant licensing. His knowledge gained during the CEC Peak Load Siting Certification contract and from licensing other power plants, along with this familiarity with the CEC staff, will expedite the permitting process. Relevant assignments follow:

Cosumnes Power Plant, Program Manager. Mr. Carrier is currently serving as the Project Manager for the licensing of Sacramento Municipal Utility District's 1,000 MW power plant to be located at the former Ranch Seco Plant. This plant would be constructed in two 500-MW phases and would provide needed voltage support for the greater Sacramento area.

Calpine Corporation, Program Manager. Mr. Carrier serves as the Program Manager providing oversight for all Calpine Corporation, c*Power and Calpine/Bechtel joint-venture licensing applications. As such, he has provided senior review and oversight on the following projects: Delta Energy Center, Los Medanos Energy Center, Metcalf Energy Center, Scott Substation Peaking Project, Martin Substation Peaking Project, San Mateo Substation Peaking Project, Central Reliable Energy Center (CREC), East Altamont Energy Center, and Teawaya Energy Center.

San Joaquin Valley Energy Center, Project Manager. Mr. Carrier is currently serving as the project manager for the licensing of the San Joaquin Valley Energy Center to be located in San Joaquin, California. This 1,060 MW power plant would provide needed power for the Central Valley and substantial tax revenue to the City of San Joaquin.

Metcalf Energy Center, Project Manager. Mr. Carrier served as the project manager for the licensing of Calpine's Metcalf Energy Center to be located in south San Jose, California. This highly controversial project requires entitlement support (annexation to the City of San Jose and rezoning) in addition to the normal licensing issues.

John Carrier

CEC Siting Process, Socioeconomic Analysis. Prepared Socioeconomic analysis for the following recent projects: Martin Substation AFC; San Mateo Substation AFC; Scott Substation AFC; Metcalf Energy Center AFC; and Sutter Power Plant AFC.

CEC Siting Certification Program, Program Manager. Served as Program Manager with general oversight responsibilities of the $10 million Power Plant Siting Program. Also served as Project Coordinator managing individual projects. Reviewed and analyzed power plant applications for environmental impacts in the area of socio-economics and economic impacts of siting facilities at alternative locations. Prepared staff evaluations, testimony, interrogatories, evidence, and coordination with other technical disciplines. Performed liaison to federal, state and local agencies to address any existing environmental concerns about projects, and incorporated this information into staff reports. Assignments for CEC include:

- ***Signal Environmental Systems, Inc., SANDER Project, Environmental Lead -*** Environmental lead during discovery and analysis phases for socioeconomics. Prepared preliminary staff assessment (PSA) of socioeconomic impacts. Also prepared economic analysis of locating project at six alternative sites.
- ***Sun Cogeneration Company, Midway-Sunset Project, Environmental Lead -*** Environmental lead during discovery and analysis phases and prepared PSA and final staff assessment (FSA) in the area of socioeconomics.
- ***Mobil Oil Corporation, Mobil Belridge Project, Environmental Group Leader -*** Environmental group leader during discovery and analysis phases and prepared PSA in the area of socioeconomics.
- ***Combustion Engineering, Bay Area Resource Recovery Project, Assistant Project Coordinator -*** Assistant Project Coordinator of this proposed municipal solid waste (MSW) plant. Coordinated multidisciplinary efforts (environmental and engineer-ing) during discovery and analysis phases for the preparation of draft PSAs. Also served as Project Coordinator of the Alternative Analysis (both alternative technologies and alternative siting).
- ***Chevron USA Incorporated, Richmond Cogeneration Project, Project Coordinator -*** Project Coordinator on this Small Power Plant Exemption (SPPE). Coordinated multi-disciplinary efforts (environmental and engineering) during all phases of the project. Also coordinated efforts between Foster Wheeler Environmental and CEC staff.
- ***Santa Maria Aggregate Corporation, Santa Maria Aggregate, Project Coordinator -*** Project Coordinator for multidisciplinary efforts (environmental and engineering) during discovery and analysis phases for the preparation of PSAs. Project included an analysis of criteria necessary for qualifying as a demonstration project.
- ***Mobil Oil Corporation, Mobil San Ardo Project, Project Coordinator -*** Project Coordinator for multidisciplinary efforts (environmental and engineering) during discovery and analysis phases for the preparation of PSAs in various disciplines. Also served as project liaison with the California Energy Commission staff.

Northern California Power Agency, Small Power Plant Exemption. Assisted in the project management of this SPPE application. Reviewed application, coordinated multidisciplinary data requests and responses. Served as liaison and coordinated efforts between NCPA and CEC project management and staff.

Carson Energy Group, Small Power Plant Exemption. Served as the Project Manager for the preparation of a Small Power Plant Exemption (SPPE) for the Carson-Energy Group's Ice-Gen Project in Sacramento, California. The project, located adjacent to the Sacramento Regional Wastewater Treatment Plant (SRWTP), is a 95-MW combined cycle cogeneration plant (53-MW base load and 42 MW peak load capacity) with a 300-ton per day ice plant. Steam extracted from the steam turbine generator will be used during the winter months to heat the digesters at the SRWTP and during the summer months to drive ammonia compressors for the ice production plant. The SPPE was granted by the California Energy Commission and the facility is now in operation.

Sacramento Municipal Utility District, Transmission Line and Gas Line Corridor Studies. Served as the Project Manager for the preparation of various studies being performed by the Sacramental Municipal Utility District (SMUD) in relation to the licensing of five power plants in the Sacramento area. With the voter-mandated closure of SMUD's nuclear energy plant-Rancho Seco-SMUD sought proposals for the development of five new energy plants. The selected projects were: Carson Energy (see above); ARK Energy; Procter & Gamble; Campbell Soup; and the Sacramento Rendering Plant. The first three power plants listed were to be permitted and constructed by developers, with the remaining projects being developed by SMUD. This project involved performing spring biology surveys for all of the transmission line corridors and gas line corridors related to the five projects. In addition, it included preparation (for submission to the California Energy Commission) of all sections of the Application for Certification (AFC) or Small Power Plant Exemption (SPPE) related to the transmission lines and gas line corridors for the five projects. Other disciplines included: cultural resources, transmission line safety and nuisance, transmission system evaluation, transmission line engineering, visual, land use, socioeconomic, and others.

Sierra Pacific Power Company, Piñon Pine Power Project. Foster Wheeler Environmen-tal prepared scientific studies in support of an Environmental Impact Statement (EIS) prepared by the Department of Energy for permitting a proposed coal-fired Integrated Gasification Combined Cycle (IGCC) power plant. Sierra Pacific Power Company (SPPCo) is proposed designing, building and operating the Piñon Pine Project at its Tracy Station, near Reno, Nevada. Foster Wheeler Environmental prepared the following nine technical studies: air quality; solid and hazardous waste and materials; water quality; cultural resources; socioeconomics; wildlife, vegetation, wetlands, and sensitive species; health, safety, and noise; geology, soils, and seismicity; and visual resources. As well as managing the project, Mr. Carrier managed the preparation of the socioeconomics report.

Alameda County Planning Department, Alameda County Energy Element. Served as Project Manager for the preparation of an Energy Element for Alameda County. The project was funded under a grant from the California Energy Commission. This project consisted of five tasks: Preparation of the Environmental Setting and Preliminary Initial Study; Energy Facility Siting Report; Energy Efficiency and Conservation Report; and the Energy Policy

Report. These four reports were then combined together in the fifth task to produce the Energy Element of the Alameda County General Plan.

Mission Energy, Environmental Assessment. Managed the preparation of an Environmental Assessment for a desalination/cogeneration facility in Glenwood Springs, Colorado. The plant was designed to generate 25 MW of power and use the steam to remove up to 200 tons of salt per day from natural springs that flow into the Colorado River. The Project included analysis of more than 30 miles of transmission line corridors. In addi-tion to project management, duties included preparation of the socioeconomic analysis.

U.S. Bureau of Reclamation, Environmental Assessment. Prepared the socioeconomic, land use, and aesthetic portions of an Environmental Assessment for the Iron Mountain Mine project. Project would result in the diversion of Spring Creek around Keswick Reservoir.

Port of Los Angeles, Socioeconomic Analysis. Prepared socioeconomic analysis as part of an EIR for the Port. Examined the impact upon the work force, housing, and general economic impacts resulting from the rehabilitation of Berths 212 to 215 into a 75-acre general cargo area.

Transmission Agency of Northern California, EIS/EIR. Prepared socioeconomic impact analysis of this 300-mile transmission line project. Included analysis of workforce impacts on lodging, sales taxes, and public services. Analyzed economic impact to county governments from property taxes. Determined economic effects of the proposed transmission line on agriculture and forestry. Also assisted in monitoring budget expenditures for project and served as social sciences group leader.

U .S. Army Corps of Engineers, Socioeconomic Analysis for Disposal and Reuse EIS for Pacific Lumber Company, Socioeconomic Analysis Review for Headwaters Forest Land Exchange, Sustained Yield Plan, and Habitat Conservation Plan EIS/EIR. This controversial EIS/EIR considers the effects of a land exchange between Pacific Lumber Company and both the State of California and the federal government. Providing peer review of the socioeconomic analysis for this EIR/EIS.

Economic Development Strategy, Newman, CA. Prepared socioeconomic profile of the community and a strategy for improving its economic development potential. Emphasis in the analysis was placed on analyzing the strength of the retail sector by comparing actual sales to average county sales levels.

Patricia Danby

Education

B.S., Environmental Health Sciences, California State University, Fresno, 1988

Professional Registrations

Certified Industrial Hygienist, Comprehensive Practice, 1994 (CP 6377)

Relevant Experience

Ms. Danby joined CH2M HILL approximately 6 years ago, following 8 years of professional experience with other firms as an industrial hygienist. As a health and safety manager for the Southwest Region, she is responsible for implementing corporate health and safety policies and procedures throughout the region. She also conducts 8-hour HAZWOPER Refresher courses, according to requirements of 29 CFR 1910.120 and appropriate state regulations. Ms. Danby has developed and delivered various training courses over the past 12 years including 8-hour Refresher and 8-Hour Supervisor for Hazardous Waste Site Operations; Respiratory Protection; Hazard Communication; Risk Awareness training for individuals with unique job hazards; and Hazardous Materials Transportation training courses (in accordance with Department of Transportation Regulations HM-181/HM-126F and the International Air Transport Association [IATA] regulations).

Health & Safety Transition Lead for the J-TECH Contract. J-TECH is a joint range technical services contract located at Edwards AFB, Nellis AFB, Hill AFB, and China Lake Naval Weapons Station. Ms. Danby served as the lead H&S professional during contract change and start-up, and prepared the program-specific HS&E manual and Standards of Practice (SOPs).

Various Power Plant Applications for Certification (AFCs)

AFC for Delta Energy Center, Metcalf Energy Center, and East Altamont Energy Center, Calpine. Provided worker health and safety services for AFC.

AFC for Rancho Seco Gas Fired Power Project, Los Esteros Critical Energy Facility, and AFCs for several small peaker plants. Provided worker health and safety services for AFC.

U.S. Environmental Protection Agency, Region IV - Performed OSHA Compliance audits for contractor activities at a hazardous waste disposal site regulated by the Environmental Protection Agency (EPA). These audits consisted of reviewing contractors' H&S programs and onsite work practices for compliance with OSHA regulations. A full-scale air-monitoring program was also conducted to evaluate if personnel working at a hazardous waste disposal site were exposed to hazardous levels of contaminants during general site operation activities.

Chevron Oversees Petroleum Inc. (COPI), Papua New Guinea - Revised its seismic operations health and safety manual to encompass those hazards associated with petroleum exploration activities, and updated the manual to comply with current regulatory requirements and best work practice scenarios.

Silver State Disposal Company- Performed a large-scale OSHA compliance audit for one of the largest waste haulers in Nevada. The OSHA compliance audit consisted of reviewing the company's various health and safety programs for compliance with pertinent regulations, reviewing training programs and verifying that training certificates were on file for employees, and evaluating current work practices and the condition of facilities associated with waste hauling operations. The facilities audited included a large municipal landfill, a recycling center, and associated transfer station.

Various Clients, California, Nevada, Utah, Oregon, Washington - Prepared and continues to prepare field safety instruction for large-scale construction and demolition projects. This activity includes preparing safety instructions, auditing the project for compliance with the safety instructions and relevant regulations, and assisting the project manager in identifying any special training or equipment that is needed to safely perform the job.

Air Force Center for Environmental Excellence (AFCEE), Various Locations - Prepared Health and Safety Plans (HSPs) for large-scale, multi-task projects for AFCEE, including Travis, McClellan, Beale, Eglin, and Hill AFBs.

U.S. Army Corps of Engineers (USACOE), Sacramento Army Depot - Served as the Project Certified Industrial Hygienist on a large-scale construction/remediation project at the Sacramento Army Depot. Her activities included conducting air monitoring to evaluate personnel exposure, performing continuing work area inspections to identify unsafe conditions, conducting onsite training, interfacing with USACOE representatives on a weekly basis, and evaluating compliance with the SSHP.

U.S. Army Corps of Engineers (USACOE), Various locations - Prepared Health and Safety Plans (HSPs) for projects under the preview of the USACOE including Carswell AFB site investigation; Nellis AFB burn pit remediation; Davis Monthan AFB site investigation; Barry M. Goldwater AFB site investigation; Fort Shafter site investigation; and Northway AFB site investigation.

Memberships in Professional Societies

American Industrial Hygiene Association
American Academy of Industrial Hygiene
Sacramento Section, American Industrial Hygiene Association

Publications/Presentations

"Shipping Hazardous Materials for Industrial Hygienists: DOT HM-126-F Training. " Professional Development Course (Co-Instructor). American Industrial Hygiene Conference and Exhibition, May 1995 and 1996.

LANNY H. FISK, Ph.D., RG 6985

Senior Paleontologist, Registered Geologist
PaleoResource Consultants
F & F GeoResource Associates, Inc.
5325 Elkhorn Boulevard, # 294, Sacramento, CA 95842
Office Phone: 916-339-9594, Mobile Phone: 916-947-9594
Fax: 530-885-9699, E-mail: Lanny@PaleoResource.com

Experience Summary

Over 25 years experience as a professional geologist/paleontologist and 20 years as a geological/paleontological consultant doing paleontological resource impact assessments and surveys, preparing CEQA and NEPA environmental documents and mitigation measures, managing environmental compliance monitoring programs, and coordinating and consulting with state and federal resource agencies to resolve environmental concerns regarding paleontological resources. Supervised paleontological resource impact mitigation programs requiring monitoring of major earth-moving projects, recovery and collection of fossil remains and fossiliferous rock samples, supervision of field personnel, and preparation of progress and final reports. Projects involved extensive coordination and consultation with project sponsors, other consulting firms, and permitting agencies; adherence to strict delivery schedules; and completion within specified budget limits. Supervised paleontological monitoring and salvaging of fossils, evaluated fossiliferous rock samples to determine need for microfossil processing, and identified fossil remains as part of paleontological monitoring and resource recovery programs for such major projects as the Pacific Gas and Electric Company-Pacific Gas Transmission Company Pipeline Expansion Project from Alberta, Canada, to Southern California; 360networks Northern California Fiber Optic Cable Project; Los Angeles Metro Rail Project; Eastern Transportation Corridor Tollway Project; Foothills Transportation Corridor Oso Tollway Project; Kettleman Hills Landfill; Sutter Energy Center Project; Newark Power Plant Project; Delta Energy Center Project; Los Medanos Energy Center Project; Blythe Energy Project; Gilroy Energy Center; Metcalf Energy Center; King City Energy Center; Pastoria Energy Facility; Otay Mesa Generating Project; and Contra Costa Power Plant. Extensive research in paleobotany, palynology, paleornithology, biostratigraphy, and paleoecology of Cretaceous and Tertiary formations of the western United States, including research in eight national parks and monuments. Research interests in and numerous scientific publications on fossil floras of the Western U. S. and Mexico. Developed laboratory research facilities at two universities for studying fossil floras, processing fossiliferous rock samples to recover plant microfossils, and interpreting age and paleoenvironment.

Experience Record

1982-present Geological and Paleontological Consultant. F & F GeoResource Associates, Inc., dba PaleoResource Consultants, Sacramento, CA. Conducted geological investigations, natural resource assessments, and paleontological resource impact assessments and surveys for environmental, engineering, petroleum, mining, and manufacturing firms, and government agencies. Prepared and supervised paleontological monitoring and mitigation programs for such large projects as the Delta Energy Center, Los Medanos Energy Center, King

City Energy Center, Gilroy Energy Center, Metcalf Energy Center, Pastoria Energy Facility, Otay Mesa Generating Project, Blythe Energy Project, Kettleman Hills Landfill, and 360networks Fiber Optic Cable Project. Identified fossils (including microfossils) and provided age and paleoenvironmental interpretations for Los Angeles Metro Rail Project, Los Angeles Metropolitan Water District Project, Santiago Canyon Estates Project, Eagle Glen Development Project, and Puente Landfill Project.

1991-present Senior Paleontologist, Field Supervisor, and Project Paleontologist. Paleo Environmental Associates, Inc., Altadena, CA. Supervised paleontological monitoring, salvaging of fossils, and processing of rock samples; identified plant fossil remains, including plant microfossils and provided paleoenvironmental analyses and age interpretations; prepared stratigraphic columns of fossil-bearing strata, and prepared monthly and final reports as part of the paleontological impact mitigation programs for the PG&E-PGT Pipeline Expansion Project, Los Angeles Metro Rail Project, Eastern Transportation Corridor Tollway Project, Sutter Power Plant Project, Texaco Sunrise Cogeneration and Power Project, Prima Deshecha Landfill Project, Eagle Glen Development Project, Amerige Heights Development Project, and the Elk Hills Power Plant Project.

1997-present Adjunct Professor. Department of Earth Sciences, American River College, Sacramento, CA. Taught undergraduate courses in physical and historical geology, marine environment, and physical science.

1979-1989 Associate to Full Professor. Department of Geological Sciences, Loma Linda University, Loma Linda, California. Taught both undergraduate and graduate courses in paleontology, geology, and philosophy of science; directed undergraduate and graduate student research and theses; conducted research in paleobotany, paleopalynology, and stratigraphy and presented and published the results; administered the department (1980-1986), and served as president of the faculty (1987-1988).

1973-1979 Assistant to Associate Professor. Department of Biological Sciences and School of Engineering, Walla Walla College, College Place, Washington. Taught both undergraduate and graduate courses in paleontology, physical and historical geology, environmental science, ecology, and philosophy of science; directed undergraduate and graduate student research and theses; conducted research in paleobotany, paleopalynology, and stratigraphy and presented and published the results. Also Visiting Professor 1996-97 teaching engineering geology, paleobotany, and environmental science.

1967-1969 U. S. Army Medical Specialist. Pentagon, Washington, DC. Performed medical testing and administered medical services to White House and Pentagon staffs and visiting foreign dignitaries.

Education

B.A. with Honors, Biology, 1971, Andrews University, Berrien Springs, Michigan

Ph.D., Paleobiology, 1976, Loma Linda University, Loma Linda, California

Post-Doctoral Research and ABD in Geology, 1979-1986, Michigan State University, East

Lansing, Michigan

Professional Registrations

Certified Professional Paleontologist, Orange County, California

Registered Geologist #6985, State of California

Registered Geologist #G1390, State of Oregon

Selected Professional Organizations

Association of Environmental Professionals

Paleontological Society

Society of Vertebrate Paleontology

Paleontological Research Institute

Society of Economic Paleontologists and Mineralogists (Rocky Mountain Section session chairman 1985)

Paleobotanical Section of the Botanical Society of America (convention session chairman 1981)

International Organization of Paleobotanists

American Association of Stratigraphic Palynologists (symposium organizer 1983; North American Paleontological Convention Committee 1986)

National Association of Geology Teachers

National Association of State Boards of Geology (National Examination Committee 1994-1999)

Geological Society of America (Central Oregon representative 1990-1995; Partners for Excellence 1992-1998)

American Association of Petroleum Geologists (Rocky Mountain Section field trip leader 1987, member of the House of Delegates 1990-1996)

Professional Activities

1994-2000 National Examination Committee, National Association of State Boards of Geology

1993-1998 Member and Vice Chairman, Oregon State Board of Geologist Examiners

1992-1999 Oregon State Geologic Mapping Advisory Committee

1990-1991 President, Northwest Energy Association

1983 Convener, Chairman, and Editor, Harry D. MacGinitie Symposium on Palynology of Tertiary Fossil Floras

1983-1985 Founding Member, Program Chairman, and Vice President, Inland Geological Society

1986 Representative to the Organizing Committee for North American Paleontological Convention IV

Selected Publications

Fisk, L. H., 1976, Paleoecological investigations of the Eocene Fossil Forest, pp. 436-437, *in*: Annual Report of the Chief Scientist of the National Park Service, CY 1975. U. S. Department of Interior, National Park Service, Washington, D.C., 556 p.

Fisk, L. H., 1976, The Gallatin "Petrified Forest": a Review, pp. 53-72, *in*: Montana Bureau of Mines and Geology Special Publication 73, Butte, Montana, 165 p.

Fisk, L. H., 1976, Palynology of the Amethyst Mountain "Fossil Forest", Yellowstone National Park, Wyoming, unpublished doctoral dissertation, Loma Linda University, Loma Linda, California, 340 p.

Fisk, L. H., 1976, Paleoenvironmental interpretations of the Eocene "Fossil Forest", Yellowstone National Park, Montana and Wyoming, 25th International Geological Congress, Abstracts, vol. 1, p.303.

Fritz, W. J., and L. H. Fisk, 1976, Paleoecology of petrified woods from Amethyst Mountain "Fossil Forest", Yellowstone National Park, Wyoming, First Conference on Scientific Research in the National Parks, Abstracts Volume, p. 92.

Fisk, L. H., and W. J. Fritz, 1976, Reinvestigations of the Petrified Forest of Yellowstone National Park, Wyoming and Montana, First Conference on Scientific Research in the National Parks, Abstracts Volume, p. 93.

Fisk, L. H., 1976, Palynology and paleoecology of the Eocene "Fossil Forest" of Yellowstone National Park, Wyoming, U.S.A., Fourth International Palynological Conference, Abstracts, p. 52-53.

Fisk, L. H., M. Christenson, and R. E. Biaggi, 1976, Pollen and spore distribution in the nearshore environment of Puget Sound, Washington, U.S.A., Fourth International Palynological Conference, Abstracts, p. 53-54.

Biaggi, R., L. H. Fisk, and E. Martinez-Hernandez, 1977, Palinologia y paleoecologia de sedimentos de la Formacion La Quinta (Oligo-Mioceno), Chiapas, Mexico, III Coloquio sobre Paleobotanica y Palinologia, Programa y Resumenes, Museo Nacional de Antropologia, Chapultepec, Mexico, D.F., p. 19.

Fritz, W. J., and L. H. Fisk, 1978, Eocene petrified woods from one unit of the Amethyst Mountain "Fossil Forest", Northwest Geology 7:10-19.

Fritz, W. J., and L. H. Fisk, 1979, Paleoecology of petrified woods from Amethyst Mountain "Fossil Forest", Yellowstone National Park, Wyoming, pp. 743-749 *in*: Proceedings of the First Conference on Scientific Research in the National Parks, Vol. II, U.S. Department of Interior, National Park Service Transactions and Proceedings Series, No. 5, 1325 p.

Barnett, J., and L. H. Fisk, 1980, Palynology and paleoecology of a sedimentary interbed in the Yakima Basalt (Miocene), Palouse Falls, Washington, Northwest Science 54(4):259-278.

Fisk, L. H., 1983, A survey of fossil plant biology: a review of Paleobotany--an Introduction to Fossil Plant Biology, American Association of Stratigraphic Palynologists Newsletter 15(3):4.

Fisk, L. H. (Editor), 1983, Palynology of Tertiary Floras of Western North America -- Harry D. MacGinitie Symposium, American Association of Stratigraphic Palynologists, 16th Annual Meeting, Program with Abstracts, 21 p.

Fisk, L. H., and W. J. Fritz, 1984, Pseudoborings in petrified wood from the Yellowstone "Fossil Forests", Journal of Paleontology 58:58-62.

Gilliland, D. S., and L. H. Fisk, 1986, Paleoethnobotany of the Tell Hesbon, Jordan, pp 286-297, *in* Hesban 2: Environmental Foundations, Andrews University Press, Berrien Springs, Michigan, 538 p.

Fisk, L. H., and S. G. Fritts, 1987, Field guide and roadlog to the geology and petroleum potential of north-central Oregon, Northwest Geology 16:105-125.

Fisk, L. H., L. A. Spencer, E. B. Lander, E. P. Gustafson, and H. M. Wagner, 1994, Beneficial impacts of large construction projects on paleontologic resources: results from construction of the PGT-PG&E Pipeline Expansion Project, WA-OR-CA, *in* Proceedings of the Fourth Conference on Fossil Resources, "Partners in Paleontology: Protecting Our Fossil Heritage", Colorado Springs, CO, 276 p.

Fisk, L. H., and L. A. Spencer, 1994, Highway construction projects have legal mandates requiring protection of paleontologic resources (fossils), pp. 213-225, *in* Proceedings of the 45th Highway Geology Symposium, Portland, Oregon, 258 p.

Selected Reports

Fisk, L. H., and W. J. Fritz, 1977, Paleoecological investigations of the Eocene Fossil Forest, *in*: Annual Report of the Chief Scientist of the National Park Service, U. S. Department of Interior, National Park Service, Washington, D. C., 580 pp.

Fisk, L. H., 1989, Report on the age of lacustrine rocks near Carlin, Nevada: report to Cominco American Resources, Carlin, Nevada, 10 p.

Spencer, L. A., and L. H. Fisk, 1991, Paleontologic resource assessment/mitigation program, PGT-PG&E Pipeline Expansion Project, Volume I: PGT Section, Oregon, Washington, and Idaho, report prepared for Federal Energy Regulatory Commission, Pacific Gas Transmission Company, and Bechtel Corporation, 102 p.

Fisk, L.H., L. A. Spencer, and D. P. Whistler, 1994, Paleontologic resource impact mitigation on the PGT-PG&E Pipeline Expansion Project, Volume I: Idaho, Washington, and Oregon: Paleo Environmental Associates, Inc.; report prepared for Federal Energy Regulatory Commission, Pacific Gas Transmission Company, and Bechtel Corporation, 102 p.

Fisk, L.H., L. A. Spencer, and D. P. Whistler, 1994, Paleontologic resource impact mitigation on the PGT-PG&E Pipeline Expansion Project, Volume II: California: Paleo Environmental Associates, Inc.; report prepared for Federal Energy Regulatory Commission, California Public Utilities Commission, Pacific Gas and Electric Company, and Bechtel Corporation, 123 p.

Fisk, L. H., L. A. Spencer, and D. P. Whistler, 1994, Paleontologic resource impact mitigation on the PGT-PG&E Pipeline Expansion Project, Volume III: Maps of Fossil Sites: report prepared for the Federal Energy Regulatory Commission, California Public Utilities Commission, Pacific Gas and Electric Company, and Bechtel Corporation, 22 p.

Fisk, L. H., and M. A. Roeder, 1996, Paleontologic resource impact mitigation program for the

Prima Deshecha Landfill, Orange County, California: report prepared for the County of Orange, Orange, CA, 12 p.

Fisk, L. H., and M. A. Roeder, 1996, Paleontologic resource impact mitigation program: Results of pregrading survey and recommendations for monitoring of grading, Foothill Transportation Corridor, Oso Segment, Orange County, California: report prepared for the County of Orange and Raytheon Engineering Corporation, 11 p.

Fisk, L. H., and E. B. Lander, 1999, Sutter Power Plant Project Worker/Employee Environmental Awareness Training Program for Paleontologic Resources: report prepared for the California Energy Commission, Calpine Corporation, and Bechtel Enterprises, by Paleo Environmental Associates, Inc., Altadena, CA, 10 p.

Fisk, L. H., 1999, Paleontologic resource section of the Newark Energy Center Application for Certification: report prepared for the California Energy Commission, Foster Wheeler Environmental Corporation, Calpine Corporation, and Bechtel Enterprises, by PaleoResource Consultants, Sacramento, CA, 25 p.

Fisk, L. H., 1999, Paleontological resource survey and impact assessment on portions of the Pacific Fiber Link Project in northern California: report prepared for the California Public Utilities Commission, Foster Wheeler Environmental Corporation, and Worldwide Fiber Networks, by PaleoResource Consultants, Sacramento, CA, 34 p.

Fisk, L. H., 2000, Paleontological resource impact assessment of the Pacific Gas & Electric Pipeline Project in Riverside and Imperial Counties, Southern California: report prepared for Foster Wheeler Environmental Corporation and PG&E Corporation, by PaleoResource Consultants, Sacramento, CA, 28 p.

Fisk, L. H., 2000, East Altamont Energy Center Application for Certification Paleontological Resource Section: report prepared for the California Energy Commission, CH2M Hill Corporation, and Calpine Corporation, by PaleoResource Consultants, Sacramento, CA, 23 p.

Fisk, L. H., 2000, Final Report on the Paleontological Resource Impact Mitigation Program for the Sacramento Municipal Utility District Sacramento Cogeneration Authority Peaker Project: report prepared for the California Energy Commission and Sacramento Municipal Utility District, by PaleoResource Consultants, Sacramento, CA, 40 p.

Fisk, L. H., 2001, Cosumnes Power Plant Project Application for Certification Paleontological Resource Section: report prepared for the California Energy Commission, CH2M Hill Corporation, and Sacramento Municipal Utility District, by PaleoResource Consultants, Sacramento, CA, 29 p.

Fisk, L. H., and E. B. Lander, 2001, Sutter Energy Center Project Final Paleontologic Resources Report on the Results of the Monitoring and Mitigation Program: report prepared for the California Energy Commission, Calpine Corporation, and Bechtel Enterprises, by Paleo Environmental Associates, Inc., Altadena, CA, 50 p.

Fisk, L. H., 2001, Paleontological resource assessment of the Big Break Regional Shoreline Preserve: report prepared for East Bay Regional Park District and Basin Research Associates, by PaleoResource Consultants, Sacramento, CA, 23 p.

Fisk, L. H., 2001, Central Valley Energy Center Project Application for Certification Paleontological Resource Section: report prepared for the California Energy Commission, CH2M Hill Corporation, and Calpine Corporation, by PaleoResource Consultants, Sacramento, CA, 30 p.

Fisk, L. H., 2001, Modesto Irrigation District Woodland Generation Station 2 Small Power Plant Exception Application Paleontological Resource Section: report prepared for the California Energy Commission, CH2M Hill Corporation, and Modesto Irrigation District, by PaleoResource Consultants, Sacramento, CA, 21 p.

Fisk, L. H., 2002, Paleontological Resource Impact Assessment for Kettleman Hills Landfill Borrow Source Area B-17: report prepared for the Chemical Waste Management Corporation, by PaleoResource Consultants, Sacramento, CA, 41 p.

Fisk, L. H., 2002, Salton Sea Geothermal Power Plant Project Application for Certification Paleontological Resource Section: report prepared for the California Energy Commission, URS Corporation, and CalEnergy Corporation, by PaleoResource Consultants, Sacramento, CA, 25 p.

SCOTT FLAKE, P. E.

CAREER HISTORY AND HIGHLIGHTS

SACRAMENTO MUNICIPAL UTILITY DISTRICT (2002 - PRESENT)
Superintendent, Project Development Engineering
Responsible for the overall engineering design of the Cosumnes Power Plant Project. Supervised the design engineer and owners' engineers to develop detailed design drawings, specifications and procurement of engineered materials. Implemented an all-electronic document management system to manage all of the drawing and specification related to the project. Worked with the Chief Building Official to ensure all engineering drawings were reviewed and approved. Developed the RFP's for the turnkey construction of the first 500 MW phase of the Project.

CALPINE (2002)
Senior Mechanical Engineer
Team Member to develop standard reference plant P&ID's for Calpine's standard plant design. Developed standards plant layout, controls, specifications and construction schedule.

DUKE ENERGY NORTH AMERICA (1998-Present)
Site Coordinator, Moss Landing New Generation Development
Team leader for Moss Landing Power Plant Application for Certification site review, operational issues and incorporation into existing operations. Coordinate activities of development team with operations, engineering design contractor and the construction team. Advise the development team and engineering contractor on interfaces with old and new plant facilities. Responsible for integration of two 530 MW combined cycle power plants with on-going plant operations.

Owner Engineer, Oakland Power Plant
Responsible for operation and maintenance of Oakland Power Plant, a 165 MW combustion turbine plant. Develop and manage annual $2 million plant budget. Direct overhauls and major maintenance of gas generators and turbines.

Moss Landing Mutual Water Company, Corporate Secretary
Responsible for preparation of all annual budget and billing activities. Direct preparation of all federal and state tax filings. Coordinate all corporate annual meetings and correspondence. Directed the conversion to an IRS recognized tax exempt 501C (3) corporation.

Plant Engineer
Team leader for all outages associated with turbines and generators. Turbine expert responsible for day-to-day operation of all plant turbines and generators. Project sponsor for capital improvements responsible for project proposal, financial justification and technical design review of $12 million high-pressure turbine rotor replacement project.

PACIFIC GAS & ELECTRIC COMPANY (1991-1998)

SCOTT FLAKE, P. E.

Power Production Engineer (1996 - 1998)
Responsible for all aspects of day to day plant operation for two supercritical boilers, turbines and all balance of plant rotating machinery.

- Managed capital and expense projects at the plant.
- Directed vibration analysis program, coordinated the high energy piping program, improved plant performance, directed equipment safety program.

(Career history and highlights cont.)

- Implemented the 24-hour bidding system used to auction power and capacity into the competitive market at Moss Landing.
- Directed instillation of revenue metering on all generation and auxiliary power supplies at Moss Landing.

Transmission Policy Analyst (1994 - 1996)
Supported contract negotiations for transmission system access. Member of policy team responsible for the overall development of the de-regulated electric market in California.

- Team leader for development of Ancillary Services policy included in the Cal-ISO tariff.
- Developed cost based rates for all ancillary services for PG&E filed in the Cal-ISO tariff.
- Provided direct testimony to support Ancillary Services rates filed at the Federal Energy Regulatory Commission.

Operating Foreman (1993 - 1994)
Responsible for the safe, efficient and reliable operation of 7 electric power plants and a fuel oil tank farm. Supervised a crew of up to 12 operators.

Engineer I (1991-1993)
Assisted Plant Engineers with performance testing and monitoring of daily plant operations at Contra Costa and Moss Landing Power Plants. Member of the Electric Power Research Institute and American Society of Mechanical Engineers Heat Exchanger Committees.

EDUCATION AND PROFESSIONAL DEVELOPMENT

Education:
B.S., Mechanical Engineering, California Polytechnic State University, San Luis Obispo, 1991
MBA, Santa Clara University, Santa Clara, expected June 2000

Professional Development:
California State Registered Professional Engineer
Member, American Society of Mechanical Engineers, 1991 – Present

Wendy E Haydon

Project Manager
Environmental/Recreation Planner

Education

M.S., Recreation Administration, California State University, Sacramento
B.A., Environmental Studies, California State University, Sacramento

Relevant Experience

As an environmental planner, Ms. Haydon's duties include managing environmental document preparation and conducting recreation, visual resources, and land use analyses. She has 15 years of experience working on Environmental Impact Reports (EIRs), Environmental Impact Statements (EISs), Environmental Assessments (EAs), Initial Studies (ISs), mitigation plans, and California Energy Commission environmental documents meeting federal and/or state requirements. She has participated in the planning or study of a wide variety of projects, including hydroelectric projects, infrastructure improvements, transportation facilities, energy facilities, urban development, land transfers, and aggregate production facilities. Ms. Haydon has considerable knowledge of the California Environmental Quality Act (CEQA), the National Environmental Policy Act (NEPA), land use and visual analyses, recreation planning, and permit acquisition. She has also been involved in the development of public participation programs.

Representative Projects

Hydroelectric/Fisheries

Menominee River Hydroelectric Projects, Wisconsin and Michigan. Assisted in preparing an EIS and the license orders for relicensing four hydroelectric projects located on the Menominee River. Conducted the recreation and aesthetics resources sections and reviewed all resource evaluations of the EIS.

Weyauwega Hydroelectric Project, Waupaca River, Wisconsin. Conducted the aesthetic resource, recreation resource, land use, and cultural resource analyses for the licensing of the Weyauwega Hydroelectric Project.

Trinity River Fishery Restoration Project, Trinity County, California. Assisted in preparation of a joint EIS/EIR for mainstream restoration project. Conducted the recreation resource and visual resource analyses evaluating the effects of the restoration of fish and wildlife resources on the mainstream Trinity River downstream of Lewiston Dam to Weitchpec.

Clavey River Hydroelectric Project, Tuolumne County, California. Conducted recreation, land use, and visual resources analyses for the preparation of a joint EIS/EIR on a proposed 150-MW hydroelectric project.

Catawba-Wateree Hydroelectric Project, Catawba and Wateree Rivers, North Carolina. Assistant project manager of an EA on a shoreline management plan for the Catawba-Wateree Hydroelectric Project. Responsibilities included directing, overseeing, and reviewing biological, geological, and hydrologic evaluations for the EA, and conducting the recreation resource evaluation.

Flint River Hydroelectric Project, Albany, Georgia. Conducted a recreation use survey at three access points on the Flint River Reservoir in Georgia, and provided senior review of the aesthetics and land management reports.

Environmental Resources

Knauf Fiberglass Manufacturing Facility, City of Shasta Lake, California. Assistant project manager for an EIR on a proposed fiberglass manufacturing facility. Directed and provided oversight of all environmental resources analyses, evaluated impacts on land use and aesthetic resources, edited the EIR for technical accuracy, prepared responses to comments received on the EIR, made presentations at public hearings and on a TV program provided as a public service to local citizens.

Rivertech Study Responses to Comments, Yolo County, California. Managed the preparation of a document that provided responses to public and agency comments received on a study evaluating Cache Creek. The Rivertech Study was circulated to the public to comply with a court order issued by the Superior Court of Yolo County, California.

Cache Creek Aggregate Processing Facility, Yolo County, California. Assisted in preparation of a supplemental EIR on the siting of an aggregate processing facility along Cache Creek. The supplemental EIR evaluated the potential impacts on biological resources, public safety, transportation and circulation, and noise from the proposed processing.

Interim Renewal Contracts, Central Valley, California. Managed the preparation of an EA evaluating the effects on environmental resources from the renewal of 67 CVP water service contracts between the U.S. Bureau of Reclamation and various water contractors located in the Central Valley of California. The EA was prepared jointly with Montgomery-Watson and Jones & Stokes Associates.

Consolidated and Conformed Place of Use, Central Valley, California Assisted in preparing the Draft EIR for the U.S. Bureau of Reclamation's proposal to consolidate and expand its Place of Use for 16 water rights permits. The environmental analysis focused on the impacts to biological and cultural resources as a result of allowing CVP water to irrigate lands in the unpermitted areas.

Banta-Carbona Irrigation District/City of Tracy Water Assignment Project, San Joaquin County, California. Assistant Project Manager for the preparation of a joint EA/IS and Biological Assessment addressing the assignment of up to 5,000 acre-feet of water from the Banta-Carbona Irrigation District to the City of Tracy. The EA/IS focused on evaluating the following resources: floodplain management, groundwater, water quality, land use, biological resources, wetlands, cultural resources, socioeconomic resources, Indian Trust Assets, and environmental justice.

The West Side Irrigation District/City of Tracy Water Assignment Project, San Joaquin County, California. Assistant Project Manager for the preparation of a joint EA/IS and Biological Assessment addressing the assignment of up to 5,000 acre-feet of water from The West Side Irrigation District to the City of Tracy. The EA/IS focused on evaluating the following resources: floodplain management, groundwater, water quality, land use, biological resources, wetlands, cultural resources, socioeconomic resources, Indian Trust Assets, and environmental justice.

Energy Facilities

Cosumnes Power Plant, Sacramento County, California. Conducted the visual resources analysis of a proposed power plant to be constructed and operated adjacent to the existing Rancho Seco Nuclear Power Plant facilities for an Application for Certification (AFC) to be submitted to the California Energy Commission. The task consisted of characterizing the existing surrounding landscape, identifying several Key Observation Points (KOPs) (sensitive receptor viewing locations), taking daytime and nighttime photos from the KOPs, directing the preparation of daytime visual simulations of the project as seen from the KOPs, assessing the visual impacts of the project, and identifying mitigation for significant impacts.

Woodland Generation Station 2, Modesto, California. Conducted the visual resources analysis of a proposed power plant to be constructed and operated adjacent to the existing Modesto Irrigation District Woodland Generation Station for a Small Power Plant Exemption (SPPE) to be submitted to the California Energy Commission. The task consisted of characterizing the existing surrounding landscape, identifying several Key Observation Points (KOPs) (sensitive receptor viewing locations), taking daytime photos from the KOPs, directing the preparation of daytime visual simulations of the project as seen from the KOPs, assessing the visual impacts of the project, and identifying mitigation for significant impacts.

Walnut Energy Center, Turlock, California. Conducted the visual resources analysis of the construction and operation of a proposed power plant for an Application for Certification (AFC) to be submitted to the California Energy Commission. The task consisted of characterizing the existing surrounding landscape, identifying several Key Observation Points (KOPs) (sensitive receptor viewing locations), taking daytime photos from the KOPs, directing the preparation of daytime visual simulations of the project as seen from the KOPs, assessing the visual impacts of the project, and identifying mitigation for significant impacts.

Modesto Irrigation District Electrical Generation Station, Ripon, California. Conducted the visual resources analyses of the construction and operation of a proposed power plant for a Small Power Plant Exemption (SPPE) to be submitted to the California Energy Commission. The task consisted of characterizing the existing surrounding landscape, identifying two Key Observation Points (KOPs) (sensitive receptor viewing locations), taking daytime photos from the KOPs, directing the preparation of daytime visual simulations of the project as seen from the KOPs, assessing the visual impacts of the project, and identifying mitigation for significant impacts.

Teayawa Power Plant, Coachella Valley, California. Conducted the visual resources analysis of a 300-MW energy center on tribal land, transmission line, natural gas pipeline route, and water supply to be constructed in the Coachella Valley for an EIS. The task consisted of characterizing the existing surrounding landscape, identifying several Key Observation Points (KOPs) (sensitive viewing locations), taking daytime photos from the KOPs, directing the preparation of daytime visual simulations of the project as seen from the KOPs, assessing the visual impacts of the project, determining the compatibility of the project with the Bureau of Land Management Visual Resource Management Program, and identifying mitigation for significant impacts.

Toquop Energy Project, Lincoln County, Nevada. Assisted in the preparation of the Draft Toquop Land Disposal Amendment to the Caliente Management Framework Plan and Draft EIS for the Toquop Energy Project. Characterized the affected environment, evaluated the potential impacts of the proposed action and alternatives, and identified mitigation, where necessary, for the following resources: soils; noise; visual resources; recreation resources; land use, Prime or Unique Farmlands, and rangelands; Wilderness Study Areas, Areas of Critical Environmental Concern, and Wild and Scenic Rivers; environmental justice; socioeconomics; and transportation.

Apex Generating Facility Transmission Line, Clark County, Nevada. Assisted in the preparation of an Environmental Assessment evaluating the construction and operation of a proposed 500-kV transmission line. characterized the existing surrounding landscape, identified several Key Observation Points (KOPs) (sensitive viewing locations), took daytime photos from the KOPs, directed the preparation of daytime visual simulations of the project as seen from the KOPs, and evaluated impacts from construction and operation on the following resources: land use, visual resources, sound quality, public services and utilities.

Water/Wastewater/Solid Waste Facilities

Rockdale County Preliminary Recreation Plan, Rockdale County, Georgia. Assessed the recreation potential of a proposed water supply reservoir located in Rockdale County, Georgia. Developed a preliminary recreation plan that outlined the types of recreation facilities that would be compatible with Rockdale County's goals, and estimated current and future use of the recommended recreation facilities.

Groundwater Recovery Enhancement and Treatment (GREAT) Program, Oxnard, California. Prepared a document that summarized the potentially applicable federal, state, and local permits, ordinance modifications, and other regulatory approvals that would be required to implement the GREAT Program. To prepare the document, the applicable agencies were contacted to discuss the appropriate permits and approvals for the project. The GREAT Program consists of the following elements: a new regional groundwater desalination facility, improvements to an existing wastewater treatment plant, conversion of an existing brackish water reclamation demonstration facility to treat tertiary wastewater, a new brine line, injecting recycled water or potable water into wells, and new conveyance facilities.

Bunkerville Flood Control Project, Bunkerville, Nevada. Prepared an EA for the Bureau of Land Management regarding the construction and operation of a proposed flood control detention basin, known as the Bunkerville Flood Control--Windmill Wash Project. The purpose of the project was to provide a flood control facility to control flooding that occurs periodically in the Town of Bunkerville, Nevada. The EA evaluated potential impacts on all environmental resources, and mitigation was identified for significant impacts.

Cement Hill Bypass Project, Fairfield and Vacaville, California. Prepared an IS/EA for Solano County Water Agency regarding the construction and operation of a proposed pipeline that would allow water to bypass the Putah South Canal in an area known to be subject to landsliding. The proposed project would allow Solano County Water Agency to deliver water for M&I and agricultural uses if the canal is damaged by a landslide. The IS/EA evaluated all environmental resources, and identified mitigation for significant impacts. Also prepared permit application materials to secure permits from the U.S. Army

Corps of Engineers, the Regional Water Quality Control Board, and the California Department of Fish and Game.

El Paso-Las Cruces Regional Sustainable Water Project, El Paso, Texas and Las Cruces, New Mexico. Prepared a human and socioeconomic resources technical report for an EIS regarding the expected effects from construction and operation of several new water treatment plants, plant expansions, and associated facilities in the El Paso and Las Cruces areas. The report evaluated the following issue areas: land use, transportation and circulation, recreation resources, health and safety, Indian Trust Assets, environmental justice, and economics.

Drainage Study, Roseville, California. Managed preparation of a drainage study that characterized the drainage and flooding potential of a 1,079-acre site proposed for development.

Lift Station 1B Force Main Pipeline Replacement Project, Truckee, California. Prepared an Initial Study/Mitigated Negative Declaration for two proposed sanitary sewer pipelines in the Town of Truckee. Issues of concern included land use, biological resources, cultural resources, air quality, hydrology and water quality, noise, traffic, and disruptions of existing utility lines.

Wastewater Treatment Plant Expansion, City of Auburn, California. Prepared the visual resource, recreation resource, and land use analyses for an EIR that evaluated the impacts of a wastewater treatment plant expansion.

Devlin Road Transfer Station Project, Napa County, California. Prepared an Initial Study/Mitigated Negative Declaration for Napa-Vallejo Waste Management Authority regarding changing the final disposal site and mode of transportation of the solid waste received at the Devlin Road Transfer Station. Solid waste that is currently transported via rail car to the Roosevelt Regional Landfill in the State of Washington would instead be transported via truck to the Keller Canyon Landfill in Contra Costa County and, temporarily, to the American Canyon Sanitary Landfill in Napa County. Primary issues of concern were the potential impacts on traffic and circulation, air quality, noise, and landfill capacity.

Transportation

Downtown/Natomas/Airport Project, Sacramento County, California. Assistant Project Manager for the preparation of a joint EIS/EIR addressing proposed transit improvements along an approximate 13-mile corridor between downtown Sacramento north to the Sacramento International Airport. Also conducting the visual resources, land use, recreation, and Section 4(f) analyses.

Hoover Dam Bypass Project, Clark County, Nevada. Coordinated and assisted in directing the preparation of the Hoover Dam Bypass Project EIS. The EIS evaluated several roadway/bridge alternatives that would bypass Hoover Dam, while providing a transportation link between Phoenix, Arizona and Las Vegas, Nevada. The purpose of the project is to improve traffic flow between Phoenix and Las Vegas, while eliminating all non-tourist traffic from crossing over Hoover Dam. Provided oversight of all environmental analyses, conducted the land use and visual analyses for the project, and coordinated and assisted in directing the preparation of the EIS.

Harbor Boulevard, Industrial Boulevard, and Jefferson Boulevard Roadway and Bridge Project, West Sacramento, California. Assisted in the preparation of an Environmental Assessment/Initial Study for improvements to the roadways. In addition to conducting the noise and aesthetic resources evaluations, prepared a portion of the socioeconomic analysis. Also obtained the federal and state environmental permits for the project, and prepared a mitigation monitoring plan for the project. The document discussed activities, timing, and responsibilities for mitigation, monitoring, and reporting.

Sutter's Landing Parkway Project, Sacramento, California. Prepared a preliminary environmental analysis of a roadway and bridge alignment. The analysis identified potential concerns and analyses that would likely be required as part of future environmental document preparation. Primary issues of concern were biological resources, cultural resources, and hazardous materials.

Atlantic Street Widening Project, Roseville, California. Assisted in the preparation of an EIR for the widening of Atlantic Street in Roseville. Assessed the potential effects on biological resources, air quality, transportation and circulation, noise, and cultural resources from the proposed widening.

Riley Street Connection Project, Folsom, California. Prepared an administrative draft EA evaluating a project that includes 1,040 feet of roadway, 2 bridges, and a railroad crossing. Primary issues of concern were biological resources (including wetlands and oak trees), cultural resources, traffic, noise, air quality, and environmental justice.

Folsom Boulevard Widening Project, Folsom, California. Prepared an Initial Study and environmental documentation evaluating the impacts on all environmental resources from widening a two-lane roadway and bridge to four lanes in the City of Folsom. Primary issues of concern include noise and land use. Also, obtained Section 404 permit from the U.S. Army Corps of Engineers, a Section 401 Water Quality Certification/Waiver from the California Regional Water Quality Control Board, and a Section 1601 Streambed Alteration Agreement from the California Department of Fish and Game.

Rawhide Road Project, Jamestown, California. Prepared an environmental analysis of two alternative roadway and bridge alignments as part of a Project Study Report being prepared to meet the California Department of Transportation requirements. Primary issues of concern were biological resources and cultural resources.

Lathrop Road Widening and Railroad Grade Separation Project, Lathrop, California. Prepared an EA addressing a long-term lease of Sharpe Army Depot land to the City of Lathrop for the City's future widening of the existing two-lane roadway and at-grade railroad crossing. The EA addressed the potential impacts of the lease and widened roadway on transportation and circulation, noise, air quality, land use, hazardous materials, environmental justice, aesthetics, biological resources, and cultural resources.

Union Pacific Railroad Binney Junction Project, Marysville, California. Obtained the U.S. Army Corps of Engineers Section 404 Permit and a Section 401 Water Quality Certification/Waiver from the California Regional Water Quality Control Board for a proposed railroad track realignment across wetlands in Marysville, California.

Land Use

Music Circus Renovation Project, Sacramento, California. Preparing an EIR for the City of Sacramento addressing the proposed demolition of structures and construction of structures

for a musical theater facility. Primary issues of concern are noise, stormwater, water, wastewater, biological resources, and historic resources.

Annunciation Greek Orthodox Church Project, Sacramento, California. Preparing an EIR for the City of Sacramento addressing the proposed demolition of an existing Greek Church and commercial and residential structures; the relocation of a historic residence; and the construction of a new Greek Church, social hall, school, senior housing, and subgrade parking structure. Primary issues of concern are noise, stormwater, historic resources, and biological resources.

Proposed Recreation Area Management Plan and Amendment to the California Desert Conservation Area Plan: Imperial Sand Dunes Recreation Area, Imperial County, California. Conducted the recreation resources and visual resources analyses as part of a Draft EIS that evaluated a proposed Recreation Area Management Plan for the Imperial Sand Dunes Recreation Area. Recreation use and capacity, Recreation Opportunity Spectrum (ROS), safety issues, and impacts on views and the landscape from the various management alternatives were discussed.

Land Transfers for Nellis Air Force Base, Nevada. Prepared two EAs for the U.S. Air Force regarding two land transfers at Nellis Air Force Base. Both land transfers would provide federal control of land in areas that would become buffer zones around air force base aircraft runways and live ordnance loading areas. The two EAs focused on land use, noise, and socioeconomics.

Range 76 Target Complex Expansion, Nellis AFB, Nevada. Prepared a Draft Environmental Assessment for the U.S. Air Force addressing the expansion of the Range 76 Target Complex. The EA addressed air quality, biological resources, cultural resources, and the State of Nevada Stormwater General Permit.

Nevada State Veterans Home Project , Boulder City, Nevada. Prepared an EA for the construction and operation of a State Veteran's Home, proposed to be located in Boulder City, Nevada. The EA evaluated the impacts on all environmental resources from developing a 180-bed skilled nursing home facility on approximately 10 acres of land. To avoid potential impacts on environmental resources, mitigation was identified and was incorporated into the project description.

Presentations

Environmental Permitting Workshop, Las Vegas, Nevada. Assisted in the organization of a permitting workshop, prepared workshop presentation materials, and was one of the presenters at the workshop. The workshop was held on May 9, 1997, in Las Vegas, Nevada, and was offered to representatives of Clark County and the cities of Las Vegas, North Las Vegas, and Henderson. The workshop was attended by about 50 representatives, and received rave reviews by the attendees. The workshop explained the federal, state, and local permitting processes and permit requirements for projects.

EDUCATION

Bachelor of Science – Mechanical Engineering
California Polytechnic State University, San Luis Obispo

REGISTRATION

Professional Engineer Licenses
California Mechanical Engineer # M 27338
Louisiana Mechanical Engineer # E-25802

SUMMARY

Served as Licensing Project Manager for 7FA combined cycle power plant and gas pipeline extension. Experience with local, state, and federal agencies, permits, and staff, including USACOE, USFWS, NMFS, SMAQMD, Sacramento County Planning Department and CDFG. Familiar with codes and standards used for plant and pipeline design and compliance, including the UBC, CBC, UMC, UPC, UFC, and Codes and Standards produced by the ASME (B31.1, B31.3, B31.8, B&PV Code Sections I, V, VIII, and IX), ANSI, NFPA, AWWA, AWS, AISC and 49 CFR 192. Served as designer, supervisor, manager, and lead principal engineer with various firms. Performed design and design review functions for power plants, refineries, chemical plants, stadiums, schools, aboveground and underground pipelines, rocket engine test stands, and space launch complexes. Assisted firms and agencies to achieve regulatory compliance in process safety management, risk management, and hazardous materials systems and processes. Certified for ten years as a visual and UTT inspector in accordance with ASNT-SNT-TC-1A. Served as a volunteer participant and voting member of the ASME Boiler and Pressure Vessel Code Committee for five years. Publications and presentations include California Boiler Inspectors Association Conference, NASA/DoD Conferences, and Petro-Safe Conferences.

REPRESENTATIVE PROJECT EXPERIENCE

COSUMNES POWER PLANT – 1,000 MW
SACRAMENTO, CALIFORNIA ~ 2000 to Present

Currently Licensing Project Manager for the SMUD Cosumnes Power Plant and Pipeline Extension Application for Certification (AFC). Responsible for schedule, budget, and technical accuracy of the AFC. The plant is a 4 x 2 using GE 7FA CTGs and Mitsubishi STGs. Coordinated the preliminary engineering layout for the plant, switchyard and linear facilities, as well as the development of environmental documentation and mitigation plans. Assists with the CBO function, and developed the compliance matrix for the plant construction.

INDEPENDENT ENGINEERING REVIEWS

Reviewed large private and public works projects for code compliance, completeness, and constructability. Projects for professional engineering firms prior to construction and CBO submittal ranged from $2 million to $700 million and include:

- California Department of Corrections Delano II Prison ~ 2000 to 2001
  Performed design reviews and code compliance assessments for the Delano II Prison. Ensured compliance with CDC requirements, siting, and security for mechanical equipment, steam plant, and sewer, water, and natural gas utilities.

- Mesa Arts and Entertainment Center ~ 2000
  Performed design reviews and code compliance assessments for the Mesa, AZ arts and entertainment complex. The $100 million five-level center includes four public assembly theaters, museum, artist's center and central plant. Reviewed the project for code and ordinance compliance, with focus on sound attenuation for the mechanical and piping systems.

- ASU Stadium Remodel ~ 2000 to 2001
  Performed the design review and code compliance assessment for the ASU stadium complex. Work included extensive remodel and extension of the five-story business operations center. Verified the design of the HVAC system and central steam and power plant.

- SJCC Northeast Quadrant Complex ~ 2000
  Responsible for interdisciplinary coordination and review of site work for a college campus utilities and building project, and extension of a natural gas pipeline to the college's central plant.

- UC Davis District Pipeline ~ 2000
  Developed a budget and work plan for the campus-wide extension and replacement of two 24-inch cooling water underground pipelines. Responsible for reviewing site work, constructability, and utilities coordination.

CAMPBELL SOUP COGENERATION PLANT – 150 MW
SACRAMENTO, CALIFORNIA ~ 1994 to 1996

Supervised the engineering design and development of P&IDs, piping isometrics, loop and logic diagrams, and specifications for the piping and controls interconnection from the power plant to the existing boilerhouse serving the steam customer. Provided field engineering services during construction. Systems included main steam, boiler feedwater, natural gas, condensate return, and hot stand-by re-circulation. Code compliance with B31.1, B31.3, B31.8, UBC, UMC, and NEC.

SACRAMENTO WATER TREATMENT PLANT BOILER ROOM
SACRAMENTO, CALIFORNIA ~ 1998 to 1999

Troubleshot and analyzed the main steam system from the Carson Cogeneration Facility host for temperature and steam supply modulation. Managed the steam supply relief system modification designs, and piping and structural analysis of main steam header modifications.

AIR FORCE RESEARCH LABORATORY, EDWARDS AFB, AND VANDENBERG AFB SPACE LAUNCH COMPLEXES ~ 1989 to 1999

Owner's engineer for the development of designs, design reviews, and performance of structural modifications to hypergolic, high pressure, steam and cryogenic systems. Performed ASME B31 and B&PV Code analyses focusing on thermal, seismic, impact load stability and safety.

PROCESS SAFETY AND RISK MANAGEMENT COMPLIANCE, VARIOUS PROJECTS ~ 1992 to 2000

Performed plant design reviews, and compliance assessments. Developed programs and engineering procedures to bring refineries and chemical plants into compliance with OSHA's 29 CFR 1910.119 and EPA's 40 CFR 68.

VARIOUS NUCLEAR POWER PLANTS ~ 1986 to 1989

Various PWR and BWR nuclear power plants including Trojan, Peach Bottom, Turkey Point, Sequoyah Unit II, and Watts Bar. Performed piping and structural code analysis, design, and modifications using ASME Section III, UBC, AISC, and ASME B31.1 codes and standards.

Employer History

Bechtel Power Corporation ~ 1986 to 1989
General Physics Corporation ~ 1989 to 2000
Kitchell CEM ~ 2000 to 2001
Integrated Engineers and Contractors Corporation ~ 2001 to 2003
Sacramento Municipal Utility District ~ 2003 to present

Thomas A. Lae
Geology

Education

Bachelor of Science – Geology. California State University, Fullerton

Professional Registrations

State of California Registered Geologist, License No. 7099

Relevant Experience

Mr. Lae has more than 13 years of experience in environmental geology and project management and is a California Registered Geologist. As a hydrogeologist, Mr. Lae supports numerous clients as a project or task manager and often performs/supervises field investigations in support of remedial investigations. Mr. Lae also serves as either a task or project manager on numerous projects for a variety of clients. Projects include Cooper Drum and Lava Cap Mine superfund sites (USEPA), Remedial investigations/feasibility studies at Beale and McClellan AFBs (AFCEE), UST and oil water separator investigation at Rough and Ready Island (US Navy), and landfill groundwater monitoring, phase II environmental assessment (City of Roseville), among others. Specific project experience includes:

Representative Projects

- **AFC section preparer.** Mr. Lae has prepared Geologic Hazards and Resources sections for six AFCs. These include East Altamont Energy Center (Calpine), Central Valley Energy Center (Calpine), Cosumnes Power Plant (SMUD), Woodland II and MEGS-Ripon (MID), and Walnut Energy Center (TID).

- **Superfund Site Investigations.** Mr. Lae serves as a project (site) manager for the Cooper Drum superfund site, located in Southgate, CA. This project involves the evaluation and remedial investigation of soil and groundwater contamination from past releases at a drum recylcing center. Mr. Lae also serves as a task manager for the Lava Cap Mine site in Nevada City, CA. This project is a site that has been affected by arsenic contamination from past gold mine processing.

- **UST and Oil Water Separator Investigation.** Mr. Lae serves as the project manager for two Navy projects at Rough and Ready Island, Stockton, CA. These projects involve the evaluation of soil and groundwater contamination at sites with underground storage tanks or oil water separators. Soil and groundwater samples were collected and analyzed to determine the presence or absence of contamination. One of the sites was successfully evaluated and a determination of "No Further Assessment" was received by the RWQCB.

- **Groundwater Monitoring.** For the City of Roseville, CA, Mr. Lae serves as both a project and task manager for the Annual and Semi-Annual groundwater reports for the former sanitary landfill. Duties include planning sampling events, evaluation of laboratory

data, preparation of graphics and tabular data, and report writing. Mr. Lae also supports landfill gas studies at the site.

- **Phase II Environmental Assessment.** As a project manager, Mr. Lae is conducting a Phase II environmental assessment for the City of Roseville of a property for potential purchase. Duties include the workplan preparation, conducting field work, data review and report preparation.
- **Remedial Investigations.** Mr. Lae serves as a task manager/team member for several on-going investigations at both Beale AFB and former McClellan AFB, CA. Duties include site supervision of both junior and subcontractor staff, site management, and report writing. Report writing duties include reviewing field and laboratory data; determining nature and extent of contamination; developing graphic aids to illustrate contaminant distributions; identifying data gaps; presenting findings to upper management and clients; creating field sampling plans; and performing third-party document review, among other tasks.
- **Phase 3 Removal Action, Castle Airport, Merced, CA.** Field supervisor of three crews during installation of 18 injection, extraction, and monitoring wells drilled with air rotary casing hammer and mud rotary drilling methods. Duties included preparing schedules, implementing overall project field sampling plans, supervising field staff, reviewing boring logs, overseeing subcontractors, assuring quality compliance of staff and subcontractors, designing wells, interpreting downhole geophysical logs, conducting well development, serving as laboratory and client project contact, compiling daily and monthly status reports, and tracking budgets.
- **Groundwater Well Installation, Castle Airport, Merced, CA.** Field supervisor for installation of deep groundwater wells to monitor removal action at Castle Airport. The monitoring wells were drilled using mud-rotary drilling equipment, and designs were based on downhole geophysical surveys. Duties included overseeing subcontractor, logging subsurface geologic data, collecting and interpreting in-situ groundwater samples, interpreting geophysical surveys, and designing and developing wells.
- **Field Work, McClellan AFB and Castle AFB, CA.** As staff geologist, duties included providing site reconnaissance and placement of boring/sampling locations; supervising subcontractors; enforcing project quality assurance plan; logging lithologic samples; collecting soil, soil gas, and groundwater samples; ensuring health and safety plan compliance of subcontractors; training new field staff on established protocols; generating daily progress reports; tracking waste containers; assisting in the placement, design, and construction of soil vapor extraction, nested soil vapor monitoring, and groundwater extraction wells; conducting subsequent step, drawdown, and long-term pumping well tests for groundwater wells; and performing SVE tests.
- **Project Geology Tasks, Various Clients and Locations.** Conducted Phase I and Phase II environmental assessments and remedial investigations. Duties included regulatory agency contact, site reconnaissance, historical aerial photograph and map review, report preparation, development of Phase II work plans, preparation of health and safety plans, work plan implementation, data collection and interpretation, and final report preparation. Also provided groundwater well design and installation, including

placement of bore locations, soil sampling, logging of drill cuttings, monitor well casing design, groundwater sample collection, conducting slug tests, and report preparation. Provided construction observation of municipal-supply wells for numerous cities and agencies throughout Orange County. Duties included oversight of subcontractors, lithologic collection and description, sieve analyses, geophysical log interpretation, assistance with casing design, well development, test-pump and data collection and interpretation, and report preparations. Performed underground storage tank assessments/removals, including subcontractor coordination, initiating permit acquisitions, soil sampling, and report preparations.

Certifications/Training

OSHA 40-Hour HAZWOPER
OSHA 8-Hour Refresher
OSHA 8-Hour Supervisor's Training
DOT Sample Packaging and Shipping
Hydrogeology Extension Course (CSUS)
Innovative Soil Gas Monitoring and Remediation Applications (seminar)
Soil Sampling for Volatile Organics (seminar)
Level "B" Experienced
Confined-Space Entry
Bloodborne Pathogens

John Arthur Lowe

Education

B.S., Environmental Toxicology, University of California, Davis

Professional Registrations

Certified Industrial Hygienist, Comprehensive Practices, American Board of Industrial Hygiene, 1985, Certificate #3152

Professional Affiliations

American Conference of Governmental Industrial Hygienists
Society of Exposure Analysis and Environmental Epidemiology
Ohio Chapter of the Society for Risk Analysis

Relevant Experience

Mr. Lowe has 22 years of experience in assessing the potential for adverse health effects, to workers and the general public, associated with chemical contaminants or radionuclides in air, soil, and water. He serves as task manager for preparing risk assessments used in facility siting, permitting, impact analyses and environmental restoration for both commercial and government clients. His project experience includes preparation of risk assessments and impact analyses of air emissions in support of siting and permitting for industrial facilities, airports, hazardous waste facilities, municipal solid waste landfills, and incinerators; public health impact analyses for EIR/EISs; preparation of risk assessments, data quality objectives, and sampling designs for investigations conducted under RCRA, CERCLA, and state hazardous waste programs; development of cleanup goals for feasibility studies and remedial design/remedial action of hazardous waste sites.

Representative Projects

- **Public health impact analysis in support the Application of Certification for several natural gas-fired power plants, including the Calpine-Bechtel Delta Energy Center (DEC), Metcalf Energy Center (MEC), proposed Central Valley Energy Center, the Sacramento Municipal Utility District proposed Cosumnes Power Plant.** Issues addressed in the public health impact analyses included carcinogenic/noncarcinogenic health risk assessment of facility emissions based on CAPCOA AB2588 methodology, detailed evaluation of the applicability of the acute reference exposure level for acrolein to emissions settings, analysis of microbiological and bioaccumulative toxicant impacts associated use of reclaimed tertiary treated water in cooling towers.
- **Health risk assessments and impact analyses for Environmental Impact Reports (EIR) for renovations at the San Diego International Airport, and for siting of the proposed Orange County International Airport at the former Marine Corps Air Station, El Toro.**

Issues addressed in the public health impact analyses included carcinogenic/noncarcinogenic health risk assessment of facility emissions based on CAPCOA AB2588, detailed evaluation of the applicability of the toxicity values for acrolein and diesel particulate to airport settings, evaluation of the uncertainties in emissions estimates and dispersion modeling to determine their influence on the use of risk assessment in determining significance of public health impacts, and review of existing risk and monitoring studies to define air toxics/public health issues associated with airport siting and operation.

- **Human Health Risk Assessment, RCRA Subpart X Facility Permit, Allegany Ballistics Laboratory (ABL), Rocket Center, West Virginia.** Involves preparation of a multi-media, multi-pathway human health risk assessment to address requirements for a RCRA Part A and B permit for Open Burning/Open Detonation (OB/OD) operations at the "Burning Grounds" site at ABL. Existing site characterization data, groundwater monitoring program data, and emissions estimation and air dispersion modeling will be integrated in the risk assessment to evaluate potential current and future impacts associated with operation of the OB/OD area.

- **Public health impact analysis for Environmental Impact Report (EIR) for siting of proposed Knauf Industries fiberglass facility, Shasta County, California.** Dispersion modeling with the Industrial Source Complex (ISC) model and risk assessment were performed to determine if facility emissions (glass fibers, ammonia, phenol and formaldehyde) posed a significant risk to human health. Critical issues addressed in the analysis included a health effects review and summary for glass fibers in air, in the absence of California-approved toxicity values.

- **Ambient air quality risk assessment for the Thermal Treatment Unit, Utah Test and Training Range, Hill Air Force Base, Utah.** Assessment of potential inhalation risks associated with hydrogen chloride and particulate matter emissions from open burn/open detonation of munitions and propellants, based on data from ambient air monitoring network.

- **Human Health Risk Assessment for an evaluation of selenium and arsenic at a Western U.S. surface coal mining complex for a confidential client.** This project was a multimedia human health and ecological evaluation of potential impacts associated with selenium and arsenic in mining overburden and reclaimed areas. The human health risk assessment addressed potential foodchain exposures (soil to plant, and plant to animal transfers) in addition to deposition onto soils from dust suspended from overburden. Characterization of health risks involved comparison of estimated mining-related exposures with typical dietary exposures, and contrasting the human experience with exposures to selenium and arsenic, as shown through epidemiological studies, with the on-site exposure scenario.

- **Evaluation of off-site air quality impacts associated with potential migration of volatile organic compounds from a hazardous waste landfill, McClellan Air Force Base, California.** Evaluated indoor and ambient air monitoring data, and performed

screening-level emissions/dispersion modeling and risk assessment to address agency and public concerns about subsurface vapor migration.

- **Risk assessment for volatile organic chemical emissions from a passive landfill gas control system for closure of the City of Roseville sanitary landfill, Roseville, California.** Estimated volatile organic compound emissions in landfill gas, modeled emissions using the ISC model, and estimated potential inhalation health risks. Risk assessment demonstrated that active landfill gas controls were not warranted to achieve protection of public health.
- **Multiple-pathway risk assessment of emissions from cement kiln used for co-firing solvent wastes, National Cement, Lebec, California.** Emissions were modeled with ISC to estimate concentrations in air. Deposition of particulate emissions onto soil was estimated with screening-level methodologies in order to evaluate indirect pathway exposures (i.e. foodchain exposures, soil ingestion, dermal contact with soil) to metals and polycyclic aromatic hydrocarbons (PAHs).
- **Risk assessment performed under the "Air Toxics Hot Spots Information and Assessment Act"(AB 2588) for air emissions (principally phenol and formaldehyde) from the Formica Corporation facility, Roseville, California.**
- **Risk assessment for air emissions from hazardous waste incinerator for the Lawrence Livermore National Laboratory (LLNL) proposed Decontamination and Waste Treatment Facility (DWTF), Livermore, California.** Both direct (inhalation) and indirect exposure pathways were evaluated; emissions addressed in this risk assessment included metals, PAHs, dioxins/furans and volatile organic compounds.
- **Risk assessment for air emissions from proposed waste to energy (municipal solid waste incinerators) in Stanislaus and San Bernardino Counties, California, for Ogden-Martin.** Case studies described in *Health Effects of Municipal Waste Incineration*, CRC Press (1991)

BOB NELSON

EMPLOYMENT HISTORY OVERVIEW:

SACRAMENTO MUNICIPAL UTILITY DISTRICT
Superintendent, Project Development (Interim, 2002 to present)
With 17 years of progressively responsible experience in the power industry, Bob currently serves in the interim capacity of Superintendent, Project Development and has been appointed as Construction Project Manager for the Cosumnes Power Plant ("CPP") Project. Intimately involved with conceptual design, permitting, acquisition/creation of emission reduction credits, purchase of major equipment, and construction of CPP. Conducted due diligence for and negotiated purchase of major equipment including two GE PG7241FA combustion turbine generators, one Mitsubishi tandem compound, reheat, double flow steam turbine generator, and Nooter/Eriksen triple pressure heat recovery steam generators. Assembled a Sacramento Metropolitan Air Quality Management District, U.S. Environmental Protection Agency, and California Air Resources Board-approved New Source Review ERC package capable of offsetting the 500 MW Phase 1 combined cycle plant in the Sacramento Federal Non-Attainment Area by conventional acquisition as well as by creation, including road paving.

SACRAMENTO MUNICIPAL UTILITY DISTRICT
Superintendent, Thermal Generation Assets (Permanent, 1999 to present)
Responsible for the operational, financial, and contractual management of all Sacramento Municipal Utility District thermal generating facilities. Operating thermal power plants currently consist of three Joint Power Authority ownership cogeneration plants and one SMUD-owned simple cycle peaking plant with a combined net generation capacity of 519 megawatts and a combined process steam load of 420 kPPH. Following Phase II build out, CPP will increase SMUD's thermal generating capability to 1,519 MW.

CONECTIV OPERATING SERVICES COMPANY
Operations & Maintenance Manager (1997 to 1999)
Responsible for the coordinated management of all Operations & Maintenance functions at the 152 million-dollar Sacramento Power Authority Cogeneration Project. Directly implement and manage budgetary, performance reporting, production reporting, environmental compliance, predictive/preventative maintenance, personnel training, lock-out/tag-out, and various administrative programs. Responsible to ensure compliance with all applicable facility permits and contracts. Managed 14 direct reports.

OPERATIONAL ENERGY CORPORATION
Shift Supervisor (1996 to 1997)
Responsible for the operation of the 47 million-dollar HL Power Company electrical generation facility. Directed and supervised up to 10 individuals at any one time to ensure that production and/or maintenance requirements were met in a cost effective, safe, and efficient manner. Charged to assure compliance with all environmental permits. Acted as plant Water Treatment Performance Improvement Specialist during tenure at HL Power Company, improving DI plant throughput from 65.59% to 101.03% of design.

WHEELABRATOR ENVIRONMENTAL SYSTEMS
Shift Supervisor (1991 to 1996)
In full licensed legal responsible charge of the 107 million-dollar Spokane Regional Solid Waste Disposal Project trash-to-energy facility. Directed and supervised up to 20 individuals at any one time to ensure that production and/or maintenance requirements were met in a cost effective, safe, and efficient manner. Charged to assure compliance with all environmental permits. Responsible for the development and implementation of policies and procedures related to both the process and personnel. Directly responsible for the training and evaluation of facility personnel. Served as plant Fire & Loss Prevention Officer.

FAIRHAVEN POWER COMPANY
Control Room Operator (1988 to 1991)
Responsible for the operation of the 22 million-dollar Fairhaven Power Company electrical generation facility. Qualified as and routinely upgraded to Shift Engineer. Served as plant Water Treatment Supervisor, responsible for all water treatment activities, equipment, and personnel. Supervised both dedicated water treatment personnel and the water treatment related performance of four operating crews.
Utility Operator (1986 to 1988)
Responsible to perform field/local equipment operations, routine rounds of the facility, demineralizer regenerations, all water testing, and other duties as assigned by the Control Room Operator or Shift Engineer. Qualified as and routinely upgraded to Control Room Operator.

PROFESSIONAL CERTIFICATIONS:

- ✓ **State of Washington Department of Ecology Solid Waste Incinerator Operator's License** (first issued September 10, 1992)
- ✓ *ACCREDITED VOCATIONAL INSTRUCTOR* (since December of 1996) **Lassen College Power Generation Technology (P.G.T.) Program**

PROFESSIONAL AFFILIATIONS:

Member, **Western Turbine Users, Inc. Board of Directors**
Member, **Lassen College Power Generation Technology (P.G.T.) Program Advisory Board**
Member, **Western Regional Boiler Association** (established 1968)
Member, **Siemens V-Series Gas Turbine User Group Steering Committee**

EDUCATION:

Bob has undertaken a significant amount of career-specific technical training, including Siemens Power Corporation Gas Turbine Combined Cycle Operations Training in 1997, the Lassen College Power Generation Technology (P.G.T.) Program in 1997, the NUS Training Corporation Operator Certification Program in 1996, Professional Training Systems Electrical Utility System Operations Training in 1994, General Physics Corporation Operator Training Program in 1992, the State of Washington Department of Ecology Incinerator Operator & Inspector Training Course for Solid Waste Combustors in 1991, Wheelabrator Environmental Systems Trash-to-Energy Process Training in 1991, and the ZURN/NEPCO Steam Generator Plant Operations Course in 1986. Bob attended College of the Redwoods in Eureka, California and graduated 5th in his class (3.97 GPA) from Eureka Senior High School in Eureka, California.

ADDITIONAL CAPABILITIES:

- ❑ **Welding & fabrication:**
  - SMAW, FCAW, GTAW, & GMAW welding processes
  - fabrication & repair of carbon steel, stainless steel, & aluminum
  - shop & field experience
- ❑ **Design drafting:**
  - structural
  - fabrication
  - patent
- ❑ **Equipment operation:**
  - front end loader
  - bulldozer
  - bridge crane
  - backhoe
  - Bobcat
  - forklift

Karen Leigh Parker
Regulatory Specialist

Education

B.S., Environmental Studies, Rutgers University

Professional Registrations

Certified Hazardous Materials Manager

Distinguishing Qualifications

- Expertise in federal, state, and local environmental regulations
- Firsthand knowledge of regulatory compliance issues from both a manufacturing and a government perspective
- Ability to negotiate terms and conditions of proposed regulatory standards and permits with regulatory agencies
- More than 20 years of environmental experience

Relevant Experience

As an environmental regulatory specialist, Ms. Parker's responsibilities include review of regulatory requirements for compliance with air quality, hazardous waste, water quality, hazardous materials, underground tank, site assessment and cleanup, and pollution prevention programs. Ms. Parker has more than 20 years of experience in environmental compliance, including hazardous materials, hazardous and solid waste, underground storage tanks, site remediation, permitting, waste minimization, air quality and water quality.

Energy

Energy Facility Siting Applications, Various Locations, California. Prepared, reviewed, or supervised the preparation of hazardous materials and waste management elements for a number of Applications for Certification (AFCs) submitted to the California Energy Commission for siting of new electric power plants in California. Plant locations included:

- San Joaquin Valley Energy Center, San Joaquin
- Cosumnes Power Plant, Sacramento
- Woodland Generation Station II, Modesto
- Los Esteros Critical Energy Facility, San Jose
- Walnut Energy Center, Turlock
- East Altamont Energy Center, Tracy

Electric Power Plant Construction, Various Locations, California. Completed documentation required prior to mobilization for construction under energy facility licensing conditions imposed by the California Energy Commission. Documents included Fugitive Dust Management Plans, Hazardous Materials Business Plans, Cultural Resources Monitoring and Mitigation Plans, Paleontological Resources Monitoring and Mitigation Plans, Biological Resources Mitigation Implementation and Monitoring Plans, Waste Management Plans, and Construction Worker Training Plans. Facilities were located in or near San Jose, Pittsburg, Modesto, and Sacramento, California.

Natural Gas Pipeline Interconnector Permitting, Sacramento River Delta, California. Coordinated a review of environmental impacts of constructing a pipeline interconnector for transport of natural gas from a well field in central California to Bay Area power plants. Project included wetlands assessment, endangered species identification, and permitting associated with stream and river crossings.

Due Diligence, Existing Fossil-Fuel Fired Power Plants, San Francisco Bay Area, California. Performed an environmental due diligence assessment for a prospective purchaser of four existing Bay Area electric power generating plants as part of the State-required divestiture of power generation assets by Pacific Gas and Electric Company.

New Power Plant Siting, Various Locations. Prepared elements of Environmental Impact Statements and air quality permit applications for the siting of new power plants in the Salt Lake City area, Southern Nevada, Southern California, and Illinois**.**

Co-generation Facilities, Northern California. Managed assessments of permitting requirements for two co-generation facilities in northern California. Assessments covered air permitting, land use, hazardous materials management, water supply and disposal, and waste management issues.

Hazardous Waste

Hazardous Waste Disposal Study, U.S. Air Force, Sacramento, California. Managed the sampling and analysis of the concrete substructure of a Titan III rocket test stand at an aerospace manufacturing facility that performed rocket manufacturing and testing. Assessed the extent of contamination of the structure and identified alternatives for demolition of the structure and disposal of the demolition debris in compliance with regulatory requirements.

Hazardous Waste Identification, Sacramento River Water Intake Construction Project, Sacramento, California. Prepared a site sampling and analysis plan and evaluated the applicability of hazardous waste regulatory requirements to soil contaminated by previous industrial operations at a former Superfund site.

Hazardous Waste Site Identification and Compliance Study, Pacific Gas & Electric Company (PG&E), Walnut Creek, California. Provided assistance to the Gas Services Division of PG&E periodically with hazardous waste identification and compliance with underground storage tank requirements.

Sampling and Analysis Plan, Beale Air Force Base, Yuba City, California. Reviewed waste disposal alternatives for remediation-derived wastes (RDW) and developed a detailed RDW management plan and standard operating procedures for waste disposal.

Base Realignment and Closure, Kelly Air Force Base, San Antonio, California. Assisted with preparation of Closure Reports for several hazardous waste management units at the base.

Environmental Permitting and Compliance
Due Diligence Assessment, Public Water Supplier, Reno, Nevada. Performed assessment of status of environmental compliance for two water treatment plants, four hydroelectric power plants, and numerous tank and reservoir storage facilities and water supply wells during sale of water company's assets.
Environmental Impact Report, Imperial Irrigation District, Southern California. Assisted in assessing the air quality impacts of implementing a water conservation program in the Imperial Valley.

Environmental Permitting Assistance, Sacramento County Business Environmental Resources Center (SCBERC), Sacramento, California. Provided full-time onsite assistance for 6 months to SCBERC, which assists businesses that are planning to locate in the county with their environmental permitting requirements. Specific project concentrated on identifying possible impediments to conversion of McClellan AFB to private industrial park.

Toxic Substances Control Act (TSCA) Guidance, Applied Materials, Santa Clara, California. Prepared a guidance manual for compliance with TSCA for use at this electronics manufacturer's facilities worldwide.

Due Diligence Assessment, Glass Manufacturing Facility, Antioch, California. Performed a site audit and records review to determine compliance with environmental requirements at a glass bottle manufacturing facility on behalf of a prospective purchaser.

Site Remediation
McClellan Air Force Base, Sacramento, California. Reviewed regulatory requirements and evaluated feasibility of using a Corrective Action Management Unit (CAMU) for cleanup of non-volatile organic compounds in soils at the base.

Applicable or Relevant and Appropriate Requirements (ARARs) Preparation, Montrose-Del Amo, Torrance, California. Provided assistance with preparation of ARARs for Superfund feasibility study.

Five-Year Reviews, U.S. Environmental Protection Agency Region 9, California and Arizona. Reviewed and updated ARARs for three asbestos-mining sites in California and a landfill in Arizona.

RCRA Facility Investigation (RFI) Workplan, Riverbank Army Ammunition Plan, Riverbank, California. Oversaw development of RFI Workplan for solid waste management units at the plant.

Air Quality

Environmental Assessments, Cumulative Air Quality Impact Analyses, Private Air Carriers, Newark and LaGuardia Airports, New York City Metropolitan Area. Determined applicable requirements under State Implementation Plans and conformance of proposed airside expansion projects with air quality requirements.

Air Regulations/Permitting, Hill AFB, Ogden, Utah. Coordinated the review and identification of all applicable federally enforceable air regulations and air permit requirements for inclusion in two Title V permit applications submitted to the Utah Department of Air Quality in accordance with the requirements of Title V of the Clean Air Act Amendments of 1990. The project involved review of all state and federal air regulations, review of all processes and activities conducted at Hill AFB and at the Utah Test and Training Range, compilation and review of all current State air quality permits, assessment of the status of compliance with all identified regulations and permit conditions, and evaluation of compliance options for current and future requirements.

Air Quality Study, Aerojet, Sacramento, California. Involved identification of the federally enforceable applicable requirements under the U.S. EPA's air quality management programs and the Sacramento Metropolitan Air Quality Management District's air quality rules and regulations for the purpose of inclusion in Aerojet' s Title V permit application. Also involved assistance with determining a compliance strategy for complying with the requirements identified.

Air Quality, McClellan AFB, California. Reviewed federal and local air quality regulations to determine their applicability to processes conducted at McClellan AFB under the Title V air permitting program administered by the Sacramento Metropolitan Air Quality Management District (SMAQMD).

Title V Air Permitting, Procter and Gamble, Sacramento, California. Performed preliminary review of potentially applicable federal and SMAQMD regulations for the Sacramento manufacturing facility for the purpose of preparing a Title V air permit application.

Air Quality Regulatory Review, Georgia Pacific, Martell, California. Reviewed federal and Amador County Air Pollution Control District air quality regulations and determined their applicability to two Georgia Pacific facilities located in Martell, California, for a Title V permit application.

Air Quality, Buckley Air National Guard Base, Colorado. Updated applicability determination for air quality regulations for Title V permit.

Experience Prior to CH2M HILL

Before joining CH2M HILL, Ms. Parker served 4 years as a senior environmental analyst for Aerojet Propulsion Division. She was responsible for identifying requirements and submitting necessary reports to regulatory agencies to ensure compliance with specific environmental regulations. Air Toxics Hot Spots, Toxic Substances Control Act, Prop 65, DEA Controlled

Substances, Asbestos NESHAP, and Regulatory Development at Local AQMD are specific programs she has been responsible for.

Ms. Parker also served as a hazardous materials specialist for the Sacramento County Environmental Management Department. In this position, she enforced hazardous materials management, underground storage tank, and hazardous waste generator requirements for various facilities within the county. In addition, she provided technical assistance to businesses with compliance issues, including emergency response planning, waste minimization, site remediation, and hazardous waste permitting.

As an environmental engineer for Signetics Corporation, she was responsible for regulatory compliance with hazardous materials, hazardous waste, and underground storage tank requirements at their Sunnyvale, California, facility. The company operated numerous hazardous waste generator facilities and an active, and several inactive, TSDFs. In this position, she developed compliance programs for new regulatory requirements, prepared and conducted training programs, conducted facility audits, established a waste minimization program, and coordinated closure activities at several RCRA storage and treatment facilities.
Ms. Parker also served as an environmental analyst for EMCON Associates for 5 years. Her responsibilities included solid and hazardous waste and hazardous materials-related permitting, facility auditing, and coordination of soil and groundwater assessments for various clients, including Department of Defense (DOD) facilities, manufacturers, utilities, and state and local government agencies.

Membership in Professional Organizations
Air and Waste Management Association

JOSEPH C. PENNINGTON
SUPERINTENDENT, GAS PIPELINE ASSET

QUALIFICATIONS

Twenty-two years experience associated with the design, operation, maintenance, construction, project management, supervision, and business management of natural gas transmission, distribution and gathering systems.

EXPERIENCE

SACRAMENTO MUNICIPAL UTILITY DISTRICT **1999 - Present**
(Sacramento CA)

Responsible for the overall management of the District's 50 mile gas transmission pipeline system which includes operation, maintenance, and construction; developing and monitoring annual budget; analyzing gas pipeline facilities performance; and developing/implementing procedures, and ensuring compliance with Department of Transportation Office of Pipeline Safety Regulations and California Energy Commission Condition of Certification.

SOUTHWEST GAS COMPANY **1993 - 1999**
(Phoenix AZ and Tucson AZ)

Responsible for supervising personnel responsible for engineering/designing gas systems (transmission and distribution) associated with new customers (residential, commercial and industrial), and local and state agencies' projects.

PACIFIC GAS AND ELECTRIC COMPANY **1980 - 1993**
(Sacramento CA, Oakland CA, and Eureka CA)

Responsible for designing major gas transmission pipelines and pressure regulating stations, managed all aspects of transmission department projects from inception to completion, reviewing maintenance and operation records to ensure compliance with governmental regulations and company standards, supervising personnel (directed, trained and motivated personnel with diverse responsibilities including estimating, engineering, planning, measurement, control, regulation, corrosion prevention, gas and electric mapping and control center), and provided technical expertise and support on all gas activities and facilities.

EDUCATION

B.S., Mechanical Engineering, California State University, Sacramento, CA 1980

PROFESSIONAL ACTIVITIES

- Registered Professional Engineer in California M 23147 (1984)
- Registered Professional Engineer in Arizona 29807 (1995)
- Member of American Society of Mechanical Engineers (ASME)
- Member of American Public Gas Association (APGA)

Thomas Priestley, Ph.D, AICP/ASLA
Senior Environmental Planner

Education

Ph.D., Environmental Planning, University of California, Berkeley
M.L.A., Environmental Planning, University of California, Berkeley
M.C.P., City Planning, University of California, Berkeley
B.U.P., Urban Planning, University of Illinois

Professional Affiliations

American Institute of Certified Planners
American Planning Association
American Society o f Landscape Architects
International Association for Impact Assessment

Relevant Experience

Dr. Priestley has more than 20 years of professional experience in urban and environmental planning and project assessment. He is known nationwide for his expertise in evaluating aesthetic, land use, property value, and public acceptance issues related to electric energy projects. His experience includes projecting community land use development trends to determine facility needs and optimal location; assessing land use and visual effects of proposed electric facilities; and conducting studies of public perceptions of project visual effects. Through his project experience and his research conducted for utility clients, Dr. Priestley has developed a broad knowledge of methods used for siting electric generation, transmission and substation facilities, and mitigating their land use, aesthetic, and other environmental effects.

As editor or co-author, he has made major contributions to Edison Electric Institute publications related to understanding and evaluating the environmental effects of electric facilities. He has prepared environmental assessment documents in response to the requirements of the National Environmental Policy Act (NEPA), the California Environmental Quality Act (CEQA), the US Forest Service Visual Management System, the Federal Energy Regulatory Commission, and the California Energy and Public Utilities Commissions.

As the senior professional in the visual resources practice in CH2M HILL's Western Region, he has responsibility for oversight of visual resource analysis activities in the western states, with an emphasis on issue scoping, study design, mobilization of appropriate staff and technologies, and senior review of final products.

Selected Professional Experience and Research Related to Electric Facilities

Analyses of Visual Resource Impact of Gas-fired Power Plants, Various Locations, California. Evaluated the potential visual resources impacts of 14 gas-fired power plants proposed for a variety of urban and rural settings in both Northern and Southern California (Delta, Elk Hills, Metcalf, Newark, Eastshore, Warnerville, Gilroy, Rio Linda, Russell City,

East Altamont, Los Esteros, Inland Empire, and Central Valley). Identified visual issues, designed the analysis strategies, contributed to development of architectural and landscape treatments, prepared visual resources analyses for the Applications for Certification for submittal to the California Energy Commission (CEC), reviewed and critiqued relevant sections of the Energy Commission's analyses of the projects, and evaluated the visual issues associated with CEC-proposed alternative sites. As an expert witness on visual resources, prepared written testimony and provided oral testimony on seven projects in hearings before the Energy Commission (Sutter, Delta, Elk Hills, Metcalf, Russell City, Los Esteros, and East Altamont).

Bay Area Resource Recovery Facility and Transmission Line, San Mateo County, CA. As a consultant to the CEC, analyzed the aesthetic impacts of a cogeneration plant and transmission line proposed for development on a site adjacent to San Francisco Bay.

Glenwood Springs Cogeneration Plant and Transmission Line, CO. Analyzed the aesthetic impacts of a proposed 25 mW cogeneration/desalinization plant. Assisted with the alignment selection for the transmission line associated with the plant, and evaluated the line's visual effects

Kangley-Echo Lake Transmission Line, King and Kittitas Counties, WA. Scoped the visual issues, and designed and conducted the assessment of the potential aesthetic impacts of a proposed 500 kV transmission line on four alternative routes, with a total length of approximately 120 miles through forest, recreation, scenic corridor, and rural and suburban residential areas. Supervised the preparation of photo simulations and the preparation of GIS analyses. Prepared the technical report documenting the analysis and recommended strategies for mitigation of project impacts.

Jefferson-Martin Transmission Project Proponent's Environmental Assessment, San Mateo County, CA. Senior reviewer and consultant for an analysis of the aesthetic issues associated with the proposed replacement of a 14.7-mile segment of an existing 60 kV transmission line with a 230 kV line on larger towers as part of a permit application developed for filing with the California Public Utilities Commission (CPUC).

Tri-Valley Transmission Upgrade Project Proponent's Environmental Assessment, Alameda County, CA. Analyzed aesthetic issues associated with a system of new 230 kV lines and substations being proposed by Pacific Gas and Electric Company (PG&E) to upgrade service to the Livermore/Pleasanton/San Ramon area. Scoped issues and made an evaluation of a large set of candidate routes to aid selection of a smaller set of preferred routes. Conducted detailed visual analyses of the preferred routes, wrote the draft of the visual analysis report, and proposed mitigation measures in preparation for filing of a permit application with the CPUC.

Valley-Auld Transmission Line Proponent's Environmental Assessment, Riverside County, CA. Scoped visual issues associated with a proposed 12-mile, 115 kV Southern California Edison transmission line, conducted visual analyses, prepared the visual analysis report, and proposed mitigation measures to reduce project's visual effects to less than significant levels in preparation for filing of a permit application with the CPUC.

Swan Lake/Lake Tyee Transmission Project, Tongass National Forest, AK. Prepared visual section of the Environmental Impact Statement (EIS) for a 60-mile transmission line

and associated access roads proposed by Ketchikan Public Utilities for Forest Service lands in Alaska's southeast peninsula. Coordinated with Forest Service planning and visual resource management specialists; reviewed Forest Service Visual Resource Management analyses and policies for the project area; analyzed existing landscape conditions; evaluated the aesthetic effects of similar facilities that already exist in the region; provided advice about siting of the route alternatives; analyzed the visual effects of the alternatives; and developed mitigation strategies.

Colusa County Transmission Line Element, Colusa County, CA. Consultant to a team that developed an element for the Colusa County General Plan to guide the siting and design of new electric transmission lines. Summarized the literature on transmission line effects and on siting and design options for impact mitigation; developed an analysis framework; provided technical review of all final products; and prepared the chapter on aesthetic issues. The aesthetic work included survey and evaluation of the county's current landscape conditions and sensitivities, and development of siting and design guidelines.

International Electric Transmission Perception Project. Project Manager for a multi-year research program sponsored by Hydro-Québec, Electricité de France, BC Hydro, the Bonneville Power Administration, and Southern California Edison. Managed a team of planners and social scientists conducting research aimed at development and application of standardized methods for surveying the public's perceptions of the impacts of high voltage transmission lines. Identified transmission line siting issues and information needs; summarized and evaluated existing research findings; participated in development of a conceptual framework for understanding the public's perceptions; and contributed to the development of a master plan and design for preparation and testing of standardized survey instruments.

East Anderson Receiving Station Growth Impact Study, Phoenix, AZ. For the Salt River Project, analyzed the land use development implications of a large electric receiving station proposed for a developing area on the edge of Phoenix. Directed collection, mapping, and analysis of demographic, economic, land use, infrastructure, planning, and policy data, and generation of projections of future land use patterns under project and no-project scenarios.

Environmentally Sensitive Design of Transmission and Substation Equipment. For Hydro-Québec and Electricité de France, developed an inventory and assessment of the experience of US utilities in developing new transmission and substation equipment designs to reduce aesthetic and other environmental impacts. Activities included literature review, survey of utility engineers and planners, interviews with utility personnel, and documentation and synthesis of findings.

Design Solutions for Mitigation of Substation Impacts. For Hydro-Québec, documented the experience of utilities in the US, Canada, France, and Japan in the development of design solutions for urban substations to aid their integration into their settings. In addition, documented measures used by US utilities to respond to environmental issues associated with modifications of existing substations.

Review of New Design for 500 kV Towers, British Columbia, Canada. Aesthetics specialist on a panel of experts convened by BC Hydro to review a new design for 500 kV transmission towers.

Development of a New Method for Considering Aesthetic Issues in Transmission Line Siting, Québec, Canada. For Hydro-Québec, provided conceptual review and research assistance for its efforts to evaluate and revise approaches to treatment of transmission line aesthetic issues in project planning, siting, and design.

Study of Transmission Line Effects on Property Values, Solano County, CA. Consultant and major contributor to the design and implementation of a research project sponsored by Southern California Edison that used hedonic modeling to evaluate the property value effects of transmission lines in a cross-section of suburban residential neighborhoods.

Review of the Literature on Transmission Line Effects on Property Values. Major contributor to development of an Edison Electric Institute sponsored bibliography and critical review of post-1975 studies on the relationship between transmission lines and the value of residential property.

Guide to Conducting Research on Transmission Line Property Value and Aesthetic Effects. Co-author of an Edison Electric Institute guidebook for utility staff on the design and implementation of research on the effects of electric transmission lines on perceptions and property values in residential neighborhoods. Co-authored and assisted in the production of an accompanying videotape.

Study of Public Perceptions of a Transmission Line in a Residential Neighborhood, Vallejo, CA. Designed and conducted a survey of resident perceptions of a newly upgraded 115/230 kV transmission line in a neighborhood of single-family homes. Conducted advanced analysis and interpretation of the findings. Published the results as a research report and journal article.

Kittitas Valley Wind Power Project, Kittitas County, WA. Conducted visual impact studies and prepared the visual impact assessment analysis for a proposed wind power project entailing installation of 116 large 1.5 to 2.3 mW turbines on exposed ridge lands in close proximity to highways and rural residences.

Altamont Pass Wind Resource Area Repowering, Alameda and Contra Costa Counties, CA. Evaluated the potential visual effects of a program to replace existing wind turbines in the Altamont Pass area with a smaller number of larger, more efficient units. Scoped issues; reviewed and synthesized the research literature on public perceptions of wind turbine visual effects; and evaluated site conditions, viewer sensitivity, and visual simulations to prepare written analysis for inclusion in the counties' environmental assessment under CEQA.

Oroville Facilities Hydroelectric Project, Oroville, CA. As part of an Applicant Prepared Relicensing (APR) process, responsible for preparation of initial project documents. Developed outlines and work plans; coordinated with the Department of Water Resources and environmental specialists for each of the issue areas; assembled drafts; edited text; designed final reports; and supervised report production. Responsible for analysis of the visual resource issues associated with the project's reservoir, forebay, afterbay, canals, dam structures, power houses, and fish ladder facility. Technical advisor to the Land Use, Land Management, and Aesthetics Work Groups, requiring participation in sessions involving agency staff, representatives of Indian Tribes and Non-Governmental Organizations, and members of the general public.

Willamette Falls Hydroelectric Project, Oregon City and West Linn, OR. As part of the APR process, prepared analyses of visual resources issues that included evaluations of the appearance of the falls under varying flow conditions, as well as assessments of the relationship of project structures to the project's landscape setting.

Aesthetic and Site Enhancement Studies, Shoshone Falls Hydroelectric Project, ID. Consultant to Idaho Power on the effects of proposed relicensing of the Shoshone Falls hydroelectric project on the aesthetic qualities of the falls and adjacent park. Provided direction for development of the analysis approach for assessing the effects of changes in flows over the falls on the falls' appearance and public expectations. Evaluated the project in light of local government and land management agency plans and policies, designed and implemented special perception studies, and worked with an advisory committee of representatives of local governments and state agencies. Based on this process, recommended mitigation and enhancement measures. Assisted in preparing a visual analysis report for incorporation into the Exhibit E submitted to Federal Energy Regulatory Commission (FERC).

FERC Exhibit E, Snoqualmie Falls Hydroelectric Project, WA. Analysis of the aesthetic implications of a proposal by Puget Sound Power and Light to increase the capacity of its generating plant at Snoqualmie Falls. Assessed impacts of structural changes and changes to flows over the falls. Developed and applied a methodology for evaluating the effects flow changes would have on the falls' appearance. Prepared the aesthetics section of Exhibit E of the relicense application. Developed the script for a video regarding the aesthetics issues submitted to the FERC.

Environmental Evaluation of Proposed Modifications to Existing Hydroelectric Facilities. On behalf of Hydro-Québec, documented FERC procedures and guidelines for environmental assessment of proposed changes to existing hydroelectric projects. Documented hydro upgrade-related activities undertaken by the US Bureau of Reclamation and the US Army Corps of Engineers.

University Teaching

Department of City and Regional Planning, University of California, Berkeley. Lecturer Taught CP 214, "Urban and Regional Physical Infrastructure," a graduate level course providing a survey of the major infrastructure systems, their characteristics and impacts, and their relationships to the planning of cities and regions.

Department of Urban and Regional Planning, California State Polytechnic University, Pomona. Assistant Professor. Designed and taught undergraduate courses in urban design, and natural factors in planning. In addition, taught studio sections of courses in graphic communication and design and in subdivision design. Conducted activity sections of the introduction to cities and planning course.

Ecole Nationale des Ponts et Chaussées. Paris, France. Visiting Lecturer. Taught "The Urban Environment," a lecture course in English for engineers and planners on environmental quality issues and their treatment in project planning and design.

Departments of Landscape Architecture and City Planning, University of California, Berkeley. Instructor. Co-taught "The Urban Environment," a graduate-level course

reviewing methods for treating environmental quality issues in the planning and design process. Assisted in teaching “Social Factors in Landscape Design.”

Selected Professional Reports, Publications and Conference Papers

Public Perception of Electric Facilities, an Advanced Workshop, Washington, DC March 17, 18, 19, 1996: Workshop Summary (editor). Published by the Edison Electric Institute, Washington, DC, 1997.

Perception of Transmission Lines: Summary of Surveys and Framework for Further Research (with Kenneth Craik, Mary Deming, and Selma Monsky). International Electric Transmission Perception Project. Published by Edison Electric Institute, Washington, DC, 1996.

"Environmental Perception, Cognition, and Behavior: Public Responses to Electric Transmission Lines" (with Gary Evans, Ph.D.). Journal of Environmental Psychology 16, 65-74, March, 1996.

L’ integration dans l’environnement des ouvrages de transport d’energie electrique. (in collaboration with Aménatech). Prepared for Hydro-Quebec and Electricite de France. 1996.

Environmental Design Issues Associated with Older Substations. (with Aménatech). Report prepared for Hydro-Québec, Vice-présidence Environnement, October, 1995.

"The Public and Electric Facility Siting" (with Daniel Cohen). Article published in Environmental Planning Quarterly, Spring, 1995.

Substations in the Urban Context: Design Issues and Examples. Report prepared for Hydro-Québec, Vice-présidence Environnement, 1994.

"Colusa County Transmission Line Element" Paper given at Edison Electric Institute National Land Management Workshop, Duluth, Minnesota, August 1992 and submitted for inclusion in the workshop proceedings.

Perceived Effects of Electric Transmission Facilities: A Review of Survey-Based Studies. Prepared for the Siting and Environmental Planning Task Force of the Edison Electric Institute. 1992.

The Effects of Overhead Transmission Lines on Property Values: A Review and Analysis of the Literature. (with Cynthia Kroll, Ph.D.) Prepared for the Siting and Environmental Planning Task Force of the Edison Electric Institute. 1992.

A Statistical Analysis of Transmission Line Impacts on Residential Property Values in Six Neighborhoods. (with Patrice Ignelzi) Prepared for the Southern California Edison Company. May, 1991.

Perceptions of a Transmission Line in a Residential Neighborhood: Results of a Case Study in Vallejo, California. (With Gary Evans, Ph.D.) Prepared for the Southern California Edison Company. November, 1990.

Undergrounding of Electric Transmission Lines: A Review of Recent Cases in the United States. Prepared for Vice-présidence Environnement, Hydro Québec. July, 1990.

A Guide to Assessing Transmission Line Impacts in Residential Communities. (with Patrice Ignelzi). Washington, DC, Edison Electric Institute, 1990.

Transmission Line Impacts: Studying Perceptions and Property Values. (videotape, contributing author of script). Washington, DC, Edison Electric Institute, 1990.

"Perceptions of Transmission Lines in Residential Neighborhoods: Results of a California Case Study." Edison Electric Institute Workshop on Transmission Lines in Residential Neighborhoods: Issues in Siting and Environmental Planning, Portland, Oregon, October, 1989.

Aesthetic Quality Issues and Their Treatment in Electric Transmission Line Planning - Towards a New Paradigm. Ph.D. Dissertation, Department of Landscape Architecture, University of California, Berkeley, September, 1988.

"Study of the Effects of An Electric Transmission Line on Perceived Neighborhood Quality." IAPS 10, Delft, Holland, July, 1988.

"The Environment Behavior Perspective and Assessment of Landscape Aesthetics - Powerline Siting and Analysis in North America." in Environment and Human Action, Proceedings, 8th International Conference of the IAPS, West Berlin, July 25-29, 1984. Berlin: Hochscule der Kunst, pp. 51-53. 1984.

Sun, Wind, and Comfort: A Study of Open Spaces and Sidewalks in Four Downtown Areas. (With Peter Bosselmann, Edward Arens, *et. al.*) Berkeley, CA: Institute of Urban and Regional Development, 1984.

Aesthetic Considerations and Electric Utilities: An Introductory Guide to the Literature. Palo Alto, CA: Electric Power Research Institute, February, 1984.

"The Field of Visual Analysis and Resource Management: A Bibliographic Analysis and Perspective" Landscape Journal. Spring, 1983, pp. 52-59.

Transmission Lines and Land Use Development: Final Report. Prepared for the Community and Regional Planning Task Force of the Edison Electric Institute, 1983.

Steve Redeker

Position:

Manager, Rancho Seco Power Plant

Professional Society Membership:

American Nuclear Society

Experience Summary:

SACRAMENTO MUNICIPAL UTILITY DISTRICT

1979 - Present

Rancho Seco Nuclear Generating Station

Manager, Rancho Seco (March 1993 to Present)

- Responsible for overall direction of day-to-day site activities over nuclear fuel storage, operations, security, radiation protection, emergency planning, maintenance, engineering and support services to optimize the safe closure of Rancho Seco nuclear station.

Nuclear Operations Manager (July 1989 to March 1993)

- Responsible for safe operations activities of all the plant systems and the nuclear reactor, including control of plant liquid and gaseous effluents. Directed the Operations Department consisting of operators licensed by the Nuclear Regulatory Commission and the Security Department.

Operations Engineering Superintendent (February 1987 to July 1989)

- Managed the Operations Engineering group responsible for developing and maintaining the plant operations emergency procedures, and assessing operational events at Rancho Seco and other nuclear plants and developing corrective actions for Rancho Seco.

Nuclear Plant Superintendent/Operations Manager (September 1985 to February 1987, Temporary Assignment)

- Responsible for overall plant operation, including maintenance, shift operations, radiation protection and engineering during a period of major plant management changes and an extended plant outage.

Shift Technical Advisor Supervisor (October 1981 to September 1985)

- Supervised staff of engineers providing continuous on shift support and technical advise to the operating crews. This group provided in-depth engineering expertise to assure safe nuclear reactor operation in case of a plant transient or accident. Additionally, the group assessed operational events at Rancho Seco and other nuclear plants and developed corrective actions.

Nuclear Plant Instructor (September 1979 to October 1981)

- Responsible to develop and provide training courses required by the Nuclear Regulatory Commission for the Licensed Nuclear Operators.

PACIFIC GAS AND ELECTRIC COMPANY

November 1973 to September 1979

Humboldt Bay Nuclear Plant

Power Production Engineer

- Responsible to conduct routine engineering activities in support of operation of the nuclear plant.

U.S. NAVY

June 1968 to June 1973

Nuclear Power Training (June 1968 to September 1969)

Nuclear Division Officer, USS George Bancroft (SSBN–643) (September 1969- June 1973)

- Several assignments including responsibilities for radiation protection and chemistry, mechanical systems, and instrument and control systems.

Education And Training:

- U.S. Naval Academy, Annapolis Maryland; BS Applied Science, June 1968
- U.S. Navy Nuclear Power Training Unit; Idaho Falls, ID – 1968-1969

Résumé

Gary S. Rubenstein

Education

1973, B.S., Engineering, California Institute of Technology

Professional Experience

August 1981 - Present Senior Partner
Sierra Research

As one of the founding partners of Sierra Research, responsibilities include project management, and technical and strategy analysis in all aspects of air quality planning and strategy development; emission control system design and evaluation; rulemaking development and analysis; vehicle inspection and maintenance program design and analysis; and automotive emission control design, from the initial design of control systems to the development of methods to assess their performance in customer service. As the Partner responsible for Sierra Research's activities related to stationary sources, he has supervised the preparation of control technology assessments, environmental impact reports and permit applications for numerous industrial projects, including over 8000 megawatts of electrical generating capacity, in the Western United States.

Mr. Rubenstein has worked on the following key projects while with Sierra: preparation of the 1986 ozone and carbon monoxide nonattainment plans for Kern County, California; preparation of the air quality portions of the EIR/EIS for the controversial expansion of operations at the South Lake Tahoe Airport; preparation and defense of the air quality permit applications for the ACE project, the first utility-scale (90 MW) coal-fired power plant built in California; development of the CALIMFAC and EMFAC99 models, California's motor vehicle emission factor models; preparation and defense of analyses of the air quality impacts of the proposed merger between Southern California Edison and San Diego Gas & Electric Company, which would have created the country's second largest electric utility; and preparation and defense of analyses of the air quality impacts of the proposed Eagle Mountain Landfill which, when constructed, will be the largest landfill in the United States.

Mr. Rubenstein has presented testimony and served as a technical expert witness before numerous state and local regulatory agencies, including the U.S. Environmental Protection Agency, California State Legislative Committees, the California Air Resources Board, the California Energy Commission, the California Public Utilities Commission, the South Coast and

Bay Area Air Quality Management Districts, several rural California air pollution control districts, the Hawaii Department of Health, and the Alabama Department of Environmental Management. Mr. Rubenstein has also served as a technical expert on behalf of the California Attorney General and Alaska Department of Law.

Additional project experience includes the conduct and supervision of projects related to the development of emissions inventories for air quality planning purposes; the assessment of air quality trends; preparation of State Implementation Plans; the development and exercise of motor vehicle emission factor models; the analysis of motor vehicle emission data; and the preparation of legislative and regulatory analyses.

June 1979 - July 1981 Deputy Executive Officer
California Air Resources Board

Responsibilities included policy management and oversight of the technical work of ARB divisions employing over 200 professional engineers and specialists; final review of technical reports and correspondence prepared by all ARB divisions prior to publication, covering such diverse areas as motor vehicle emission standards and test procedures, motor vehicle inspection and maintenance, and air pollution control techniques for sources such as oil refineries, power plants, gasoline service stations and dry cleaners; review of program budget and planning efforts of all technical divisions at ARB; policy-level negotiations with officials from other government agencies and private industry regarding technical, legal, and legislative issues before the Board; representing the California Air Resources Board in public meetings and hearings before the California State Legislature, the California Energy Commission, the California Public Utilities Commission, the Environmental Protection Agency, numerous local government agencies, and the news media on a broad range of technical and policy issues; and assisting in the supervision of over 500 full-time employees through the use of standard principles of personnel management and motivation, organization, and problem solving.

July 1978 - July 1979 Chief, Energy Project Evaluation Branch
Stationary Source Control Division
California Air Resources Board

Responsibilities included supervision of ten professional engineers and specialists, including the use of personnel management and motivation techniques; preparation of a major overhaul of ARB's industrial source siting policy; conduct of negotiations with local officials and project proponents on requirements and conditions for siting such diverse projects as offshore oil production platforms, coal-fired power plants, marine terminal facilities, and almond-hull burning boilers.

During this period, Mr. Rubenstein was responsible for the successful negotiation of California's first air pollution permit agreements governing a liquefied natural gas terminal, coal-fired power plant, and several offshore oil production facilities.

October 1973 -	Staff Engineer
July 1978	Vehicle Emissions Control Division
	California Air Resources Board

Responsibilities included design and execution of test programs to evaluate the deterioration of emissions on new and low-mileage vehicles; detailed analysis of the effect of California emission standards on model availability and fuel economy; analysis of proposed federal emission control regulations and California legislation; evaluation of the cost-effectiveness of vehicle emission control strategies; evaluation of vehicle inspection and maintenance programs, and preparation of associated legislation, regulations and budgets; and preparation of detailed legal and technical regulations regarding all aspects of motor vehicle pollution control. Further duties included preparation and presentation of testimony before the California Legislature and the U.S. Environmental Protection Agency; preparation of division and project budgets; and creation and supervision of the Special Projects Section, a small group of highly trained and motivated individuals responsible for policy proposals and support in both technical and administrative areas (May 1976 to July 1978).

Certifications

Qualified Environmental Professional, Institute of Professional Environmental Practice, 1994

Professional Associations

Air & Waste Management Association

Society of Automotive Engineers

Jerry P. Salamy
Senior Project Manager

Education

B.A., Chemistry, Holy Names College, Oakland

Relevant Experience

Mr. Salamy has more than 16 years of consulting experience licensing new industrial energy-related sources. His expertise includes managing multidisciplinary teams to assess the environmental impacts of power plant projects on the environment. These assessments include impacts to air, biological and cultural resources, land uses, noise, socioeconomics, public health, water and visual resources, soils and geology, and paleontology. Mr. Salamy has also assisted project developers in identifying and selecting project sites, assessing the potential liabilities and benefits of several different potential sites.

In addition, Mr. Salamy has prepared numerous Prevention of Significant Deterioration Pre-Construction Air Quality Permit Applications, prepared project permitability studies, assessed industrial facilities compliance with state and federal air pollution rules and regulations, and assisted power plant clients with compliance related issues.

Representative Projects

- **Los Esteros Critical Energy Facility Application for Certification; Calpine C*Power; San Jose, California.** Managed the preparation of the Los Esteros Critical Energy Facility Application for Certification for a 180-Megawatt power plant in San Jose, California. The project required the preparation of numerous other studies/documents to satisfy the California Energy Commissions staff request. These studies/documents included the preparation of general plan amendment and a planned development zoning applications, archaeological and paleontological survey reports, and biological resource protection permits. Mr. Salamy also managed the development and implementation of biological, cultural, and paleontological resource monitoring programs, risk management plan preparation, traffic and transportation management plan, waste reduction program, and an electromagnetic force evaluation for the project construction.

- **East Altamont Energy Center Application for Certification; Calpine Corporation; Tracy, California.** Managed the preparation of the East Altamont Energy Center Application for Certification for a 1,100-Megawatt power plant in Tracy, California. In addition to managing the preparation of a multidisciplinary environmental impact analysis, Mr. Salamy prepared the alternative site and generating technologies.

- **Application for Certification for three Natural Gas-fired Energy Facilities, to be co-located with PG&E substations in San Mateo, Santa Clara, and San Francisco.** Managed the preparation of three Applications for Certification on expedited licensing schedule enacted by gubernatorial executive order. Mr. Salamy was responsible for proposal, costing, scheduling, team management and direction, as well as project execution within the required time. In addition, Mr. Salamy authored the project

description, air quality, and alternative sections of all three Applications for Certification.

- **Metcalf Energy Center Application for Certification; Calpine Corporation; San Jose, California.** Assisted in the management of the licensing of the Metcalf Energy Center Application for Certification. Mr. Salamy was responsible for the development and tracking of data response submittals requested by the California Energy Commission. Mr. Salamy also authored data responses in the area of hazardous materials management.
- **Apex Generating Station Licensing; Mirant Inc.; Las Vegas, Nevada.** Managed the licensing of Mirant's 1,100 Megawatt Apex Generating Station, located in Las Vegas, Nevada. Mr. Salamy managed the preparation of a Prevention of Significant Deterioration Pre-Construction Permit Application for the project, as well as the preparation of a National Environmental Policy Act Environmental Assessment.
- **Delta Energy Center Application for Certification; Calpine Corporation; Pittsburg, California.** Managed the preparation of the Delta Energy Center Application for Certification for an 880-Megawatt power plant in Pittsburg, California. In addition to managing the preparation of a multidisciplinary environmental impact analysis, Mr. Salamy managed the development and implementation of biological, cultural, and paleontological resource monitoring programs, risk management plan preparation, traffic and transportation management plan, waste reduction program, and an electromagnetic force evaluation for the project construction.
- **Los Medanos Energy Center Application for Certification; Calpine Corporation; Pittsburg, California.** Managed the development and implementation of biological, cultural, and paleontological resource monitoring programs, risk management plan preparation, traffic and transportation management plan, waste reduction program, and an electromagnetic force evaluation for the project construction.
- **Sutter Power Plant Application for Certification (AFC); Calpine Corporation; Yuba City, California.** Managed the preparation of the air quality section of Calpine Corporation's Sutter Power Plant AFC. The air quality analysis required the preparation of an environmental setting for the project site, a criteria and toxic pollutant emission inventory, a best available control technology analysis, and air dispersion modeling. These analyses were used to support the preparation of a Prevention of Significant Deterioration and New Source Review permit applications. These applications were submitted to the United State Environmental Protection Agency's Region IX office and the Feather River Air Quality Management District for the issuance of a construction permits. The scope of work also required the identification of emission reduction credits (ERCs) to support the New Source Review permitting process. Mr. Salamy was instrumental in locating and negotiating for the purchase of the ERCs necessary for the siting of the Sutter Power Plant.

Experience Prior to CH2M HILL

The following projects were all worked on while employed with Foster Wheeler

Jerry P. Salamy

Power Plant Projects

- **Sutter Power Plant Application for Certification (AFC); Calpine Corporation; Yuba City, California.** Managed preparation of the air quality section of Calpine Corporation's Sutter Power Plant AFC. The air quality analysis required the preparation of an environmental setting for the project site, a criteria and toxic pollutant emission inventory, a best available control technology (BACT) analysis, and air dispersion modeling. These analyses were used to support the preparation of a Prevention of Significant Deterioration (PSD) and New Source Review permit applications. These applications were submitted to the U. S. Environmental Protection Agency's Region IX office and the Feather River Air Quality Management District for the issuance of a construction permits. The scope of work also required the identification of emission reduction credits (ERCs) to support the New Source Review permitting process. Was instrumental in locating and negotiating for the purchase of the ERCs necessary for the siting of the Sutter Power Plant.

- **Risk Management and Prevention Plan; Martinez Cogen Limited Partnership; Martinez, California**. Prepared a Risk Management and Prevention Plan (RMPP) for Martinez Cogen Limited Partnership's water treatment system. The RMPP determined likely accident scenarios, and estimated offsite consequences of these accidents.

- **Review and Respond to Environmental Audit Results; Martinez Cogen Limited Partnership; Martinez, California.** Reviewed the results of a multimedia environmental audit conducted by the Martinez Cogen Limited Partnership's corporate parent company audit personnel. The purpose of the review was to determine whether the audit results reflected regulatory policy or personal policy of audit inspector. Prepared a report of actual regulatory requirements versus audit results.

- **Hazardous Waste Classification; Martinez Cogen Limited Partnership; Martinez, California.** Determined the hazardous waste classification of several containers of chemicals the client planned to dispose of through a licensed hazardous waste hauler. Prepared a letter report containing all information necessary for the client to complete a Uniform Hazardous Waste Manifest.

- **Small Power Plant Exemption (SPPE) Application; Carson Energy Group**. Performed as the technical lead in the preparation of the air quality section of a Small Power Plant Exemption application submitted to the California Energy Commission. The air quality section required an analysis of the potential air impacts from a cogeneration facility, which consists of a combined-cycle gas turbine with a fired waste heat boiler and a peaking gas turbine. The analysis also required a BACT analysis, air dispersion modeling, a cumulative impact analysis, and the preparation of a mitigation plan for the facility. As part of the SPPE, an RMPP was required by the Commission for the Selective Catalytic Reduction system (which uses anhydrous ammonia). The RMPP defined potential accident scenarios, determined offsite consequences, and suggested mitigation measures.

- **Case Study Assessment of Cofiring Wood Waste in Coal-fired Boilers; Electric Power Research Institute and Tennessee Valley Authority**. Assessed the feasibility of cofiring waste wood in TVA's fossil resources. The project required developing a field test plan

to evaluate the effects of cofiring between 10 and 15 percent (heat input basis) wood waste. After approval of the test plan, sources of wood wastes were contacted and agreements secured for the procurement of appropriate wood for the tests. Boiler performance tests were conducted to determine the effects of cofiring the waste wood. The results of the Case Study culminated in a report to EPRI and TVA.

- **Application for Certification for Cogeneration Facility; Siemens Venture Sacramento and Sacramento Power Authority at Campbells Soup**. Managed the preparation of numerous sections to the Siemens Ventures Sacramento (SVS) and Sacramento Power Authority (SPA) Application for Certification (AFC). Siemens Ventures Sacramento (SVS) and Sacramento Power Authority (SPA) proposes to build a 158-MW combined-cycle cogeneration power plant at the Campbells Soup facility in Sacramento County. The cogeneration power plant would provide Campbells Soup with thermal energy in the form of steam, in addition to producing electrical power for sale to the local utility.
- **Encogen One Sweetwater Cogeneration Facility; Encogen One Partners Limite*d***. Managed the environmental startup of a cogeneration facility consisting of three combined-cycle gas turbines capable of generating 255 megawatts of electrical energy. Provided technical/regulatory support in formulating specialized fuel monitoring programs and schedules. Coordinated field test activities during the actual startup period.
- **Marcal Cogeneration Facility; Prime Energy Limited Partnership, New Jersey**. Supplied technical expertise for the design and location of the CEMS required by the New Jersey Department of Environmental Protection (NJDEP) at a gas turbine cogeneration facility. Provided notifications and design specifics to the NJDEP. Prepared detailed source test protocols describing the methods, equipment, and analytical techniques employed in determining the facility's compliance with specific air emission limits.
- **Barbers Point Cogeneration; Applied Energy Systems, Oahu, Hawaii**. Performed an extensive study of the feasibility of the permitting and construction of two 153-megawatt coal-fired steam/electric cogeneration facilities in the Ewa District, Oahu, HI. Performed a detailed analysis of the proposed facility and the regulatory environment in the project area. Prepared an air quality analysis and determined pollution control efficiencies required to comply with existing regulation.
- **M&M Mars Cogeneration; Mars, Incorporated.** Provided startup and compliance assistance during the commissioning of a Solar Mars combined-cycle gas turbine capable of producing 8.8 megawatts of electricity. Assisted in CEMS design and placement.

Pollution Control and Air Quality Assessment Projects

- Anheuser-Busch Incorporated's Sewage and Energy Recovery Project Feasibility Review; California Pollution Control Financing Authority; Los Angeles, California. Managed the feasibility review of Anheuser-Busch Incorporated's (ABI) request for funding of a sewage and energy recovery project. The feasibility review focused on the project's feasibility on a technical and environmental basis. A financial feasibility review was not performed, due to the construction being essentially complete.

Jerry P. Salamy

- **EDCO Disposal Corporation's Transfer Station/Material Recovery Project Feasibility Review; California Pollution Control Financing Authority; San Diego, California.** Managed the feasibility review of EDCO Disposal Corporation's request for funding of a solid waste transfer stations with a material recovery facility. The project feasibility review focused on the technical, environmental, contractual, and environmental feasibility of the project. The project required interfacing with EDCO's counsel, and coordinating several subcontractors to complete the project.

- **Taormina Industries Waste Recovery and Recycling Project Feasibility Review; California Pollution Control Financing Authority; Orange County, California.** Managed the feasibility review of Taormina Industries request for funding of several waste recovery and recycling projects within its Orange County service area. The project feasibility review focused on the technical, environmental, contractual, and environmental feasibility of the project. The project required coordinating several subcontractors to evaluate the project's design and contractual feasibility. Also determined the project's environmental feasibility based on whether the project would be capable of acquiring the required environmental permits.

- **ARCO Clean Fuels Project Feasibility Review; California Pollution Control Financing Authority; Orange County, California.** Managed the feasibility review of ARCO's request for funding of its Clean Fuels Project. Included a review of the project's technical and environmental feasibility.
  Environmental Baseline Survey; Oakland Army Base; Oakland, California. Conducted interviews with onsite personnel to determine unreported environmental contamination in support of the Environmental Baseline Survey. These interviews focused on the types of processes/materials used, and potential releases of hazardous materials/waste to the environment. These interviews assisted in identifying whether additional investigations are necessary or warranted.

- **Air Emission Inventory and Compliance Assessment; National Aeronautics and Space Administration's Ames Research Center/Moffett Federal Airfield; Mountain View, California**. Conducted a comprehensive criteria pollutant air emission inventory and compliance assessment. The emission inventory required visual inspection of every building/structure on the installation to identify all potential emission sources. Collected a complete profile of each emission source sufficient to estimate emissions and to conduct air dispersion modeling. Prepared an emission inventory, including emission estimates for all criteria pollutants. Used this emission inventory to determine the source's compliance with both state (Cal-EPA), local (Bay Area Air Quality Management District), and federal (EPA) air quality regulations.

- **Emission Source Test Observation; Gallo Glass Bottle Facility, Modesto, California.** Provided expert observations at a Department of Energy-funded test facility at the Gallo Glass Bottle Facility in Modesto, California. The basis for the observations was to have an impartial observer witness the emission tests to verify that the data generated were valid. The observations also determined that the appropriate methods were used and performed correctly.

- **Sacramento Army Depot EIS; Army Corps of Engineers, Sacramento, California**. Prepared the air quality and environmental noise sections of the EIS, which analyzed

five reuse alternatives for the Depot closure and reuse. The air quality and noise sections included an analysis of the existing environmental conditions, specific effects to air quality and noise from the five alternatives proposed, and determined the net impacts to the regions air quality and environmental noise. Additionally, the air quality analysis required the performance of a conformity analysis to determine whether the preferred alternative was consistent with the State Implementation Plan.

- **Continuous Emission Monitoring System Development for Oklahoma Gas and Electric Company (OG&E) System; OG&E**. Determined the OG&E's regulatory requirements for compliance with EPA Acid Rain Program. Assessed OG&E's existing continuous emission monitoring system's ability to meet performance criteria of the Acid Rain Program. Generated detailed CEMS assessment report and developed initial CEMS design specifications.
- **Sacramento Army Depot Air Toxic Hot Spots; U.S. Army Corps of Engineers, Sacramento, California**. Managed the development of a detailed toxic air emission inventory at the Sacramento Army Depot for the USACE. The project required the estimation of toxic air emissions of acutely toxic and carcinogenic chemicals (approximately 200 chemicals) and reporting the use of approximately 200 less-toxic chemicals. Emission estimation techniques were developed for processes that did not have published emission factors; and data were compiled into an inventory report which will require updating biennially.
- **Solvent-Contaminated Soil Remediation Using Vacuum Extraction Technology; Westinghouse Hanford Company**, **Richland, Washington.** Developed performance criteria and evaluated a vacuum extraction system designed to remediate solvent-contaminated soils. The project was composed of a vacuum system that lowers the vapor pressure of the soils adjacent to a well casing, allowing the solvents in the soils to be evacuated. The evacuated vapors were directed through granulated activated carbon (GAC) canisters. Provided development support for continuous emissions monitoring systems installed on the vapor extraction unit required by the Washington State Department of Ecology and the Department of Energy's Health and Safety Division.
- **Air Quality Seminar; Korean Electric and Power**. Designed and implemented a 3-day training seminar on continuous emission monitor systems (CEMS). Developed the training seminar to instruct KEP project engineers in current environmental technologies and practices.
- **Regulatory Analysis for Major Modification to Texaco's El Dorado Refinery; Texaco Refining and Marketing, El Dorado, Kansas**. Analyzed the relevant air quality issues for a major modification to Texaco's El Dorado Refinery. Project consisted of identifying applicable federal and state regulations, permitting, emission testing, and monitoring requirements. Assisted in specifying emission monitoring systems and sampling locations.
- **Analysis of Emission Reduction Credit Potential; Federal Energy Regulatory Commission**. Analyzed the emission reduction credit potential for the replacement of electrical power generated by coal-fired plants with electrical power generated by hydroelectric plants. Analysis required the estimation of emission potential of the coal-

fired plants, determination of the potential price per ton of the emission credits, and the required power replacement needs.

- **Sacramento Army Depot Hexavalent Chromium Emissions Control Plan; U.S. Army Corps of Engineers, Sacramento, California**. Provided project management for the generation of a hexavalent chromium emissions control plan at the Sacramento Army Depot's metal plating facility. The project scope included the determination of actual hexavalent chromium emission through source testing, a comparison of the source test data with applicable regulations, researching existing control devices, and developing a control plan comprising the three most feasible control technologies.
- **Wambold Furniture; California Pollution Control Financing Authority**. Determined the viability of an innovative Volatile Organic Compound Emissions Control System (VOCECS) to reduce/control volatile organic compound (VOC) emissions required to support an increase in the facility's production schedule. The project required a technical evaluation of the equipment based on the VOCECS theory of operation and consultations with members of a facility in the process of starting up a similar unit.
- **North County Resource Recovery Associates (NCRRA); California Pollution Control Financing Authority**. Conducted a feasibility study to determine whether NCRRA, a resource recovery/waste-to-energy facility could comply with applicable state and federal air pollution rules and regulations. Reviewed existing literature on similar facilities, comparing pollutant emissions to those of the subject facility and the existing air quality regulations.
- **Sacramento Army Depot NOx Control; U.S. Army Corps of Engineers, Sacramento, California**. Managed the development of an NOx control plan for 13 dual-fired boilers at the Sacramento Army Depot. The plan design was to provide advanced planning strategies for NOx control in order to anticipate regulation predicted for near-term implementation by regulatory agencies. The plan included determining actual emission characteristics, research control alternatives, developing feasibility criteria, and providing recommendations for the three most appropriate control techniques.
- **Newby Island Recycling Project; California Pollution Control Financing Authority, Newby Island, California**. Conducted a technical feasibility study for siting a recycling facility on Newby Island. Responsible for determining the state air quality regulations to which the facility would be subject. Interviewed local regulatory officials to determine the most current permitting requirements for the recycling facility.
- **Lorentz Barrel and Drum; U.S. Environmental Protection Agency**. Assisted with developing an air monitoring program for this EPA superfund site. The monitoring program was designed to determine the concentration of TCA, TCE, vinyl chloride, trace metals, benzene, and pesticides in ambient air. The data, used to conduct air dispersion modeling, will be incorporated into a site health risk assessment.
- **Koppers Company Superfund Site; U.S. Environmental Protection Agency**. Responsible for the onsite management of sampling conducted to determine air emissions of chromium, arsenic, copper, and volatile and semi-volatile organics. Supplied technical expertise to verify the quality of the data collected. Performed site

health and safety officer duties insuring that site personnel avoided exposure to any potential health hazards.

- **Energy Factors; Kenilworth Cogeneration Facility**. Responsible for the startup notifications for a natural gas-fired gas turbine capable of producing 265 x 106 lbs/year of steam and 23.5 megawatts of electrical power. Also prepared EPA-required source test protocol describing, in detail, the methods, equipment, and analytical procedure used to determine the facility's compliance with specified air pollution emissions limits. Provided onsite management of CEMS certification tests and technical support in determining the cause of CEMS certification test failures.

- **Arroyo Pasajero Asbestos Monitoring Program; United States Bureau of Reclamation**. Designed and implemented a personnel monitoring program to determine workers' exposure to asbestos during work at a known asbestos-contaminated site. Implemented sampling quality assurance/quality control procedures designed to ensure the accuracy and precision of the data. Performed analyses on the data, comparing it to the federally recognized permissible exposure limits for asbestos exposure. Subsequently developed health and safety recommendations for future work at the site.

- **Iron Mountain Project; United States Bureau of Reclamation (USBR), Redding, California**. Prepared the appropriate section of the Initial Study, required by the California Environmental Quality Act (CEQA), for a construction project proposed by the USBR to abate asbestos-contaminated mine runoff waters from contaminating surface and ground waters. Performed an air quality analysis to determine whether the proposed project would significantly impact the local or regional air quality. The Initial Study was submitted to the EPA for review and preliminary determination.

- **Glenwood Springs Ground Water Desalinization/Cogeneration Project; U.S. Army Corps of Engineers**. Evaluated the project's permitability based on the results of an air quality analysis, potential impact to regional air quality, regulatory environment in the project area, and specific design/pollution control criteria. These evaluations determined whether the engineering/design phase would proceed.

- **Ecoserve Incorporated/Chemecology Corporation; Pittsburg, California**. Managed project to develop Air Quality Monitoring systems engineered to specific needs and regulations. Organized field test applications to control data analysis and interpretation, culminating in a client reports. Interfaced with state and federal air quality regulatory agencies. Acted as an onsite customer-relations representative using the above skills to aid clients.

- **Petroleum Refinery Work, Various Locations.** Conducted air pollution emissions and tail gas characterization testing at numerous petroleum refineries in northern California and Wyoming. Performed abatement efficiency studies on Scot units, conversion efficiency studies on Fluidized Cat-Cracking units, and determine fuel feed stock characteristics on process carbon monoxide boilers. Instrumental in the design and development of a series of temporary CEMS and ground level monitoring stations operated at a hazardous waste solar evaporation facility. Provided technical support for the development of California Proposition 65 landfill testing protocols, sampling techniques, and field equipment.

Jerry P. Salamy

Permitting

- **Prevention of Significant Deterioration (PSD) Permit; Solano Cogeneration Incorporated; Martinez, California.** Managed preparation of a PSD Permit for a gas turbine cogeneration facility located in Martinez, California. Permit preparation involved defining the exhaust stack height, and emission characteristics. In addition to the permit preparation, was responsible for identifying and negotiating for the transfer of emission reduction credits necessary for the permitting of the project.

- **Prevention of Significant Deterioration (PSD) Permit; Sutter Power Project, Calpine; Yuba City, California.** Managed preparation of a PSD Permit for a merchant power plant consisting of two combined-cycle gas turbine generator units. Permit preparation involved development of emission characteristics for criteria pollutants and identification and negotiation of emission-reduction credits necessary for permitting of the project. The permit was submitted to the EPA for its review and approval. The local air district was not delegated authority for the PSD program.

- **Title V Air Operating Permit; Nevada Sun-Peak Power Limited Partnership; Las Vegas, Nevada.** Prepared a Title V air operating permit application for three simple-cycle GE Frame 7EA combustion turbines and other minor sources (including fugitive emission sources). The Title V permit application was required for submittal to the Clark County Health District in conformance with the 1990 Clean Air Act Amendments. The Title V permit application included a detailed emission inventory, a review of applicable regulations, alternative operating scenarios, and a compliance determination.

- **Title V Air Operating Permit; Martinez Cogen Limited Partnership; Martinez, California.** Prepared a Title V air operating permit application for Martinez Cogen Limited Partnership's two combined-cycle GE Frame 6 combustion turbines, starter engines, cooling tower, and other minor sources (including fugitive emission sources). The Title V permit application was required for submittal to the Bay Area Air Quality Management District in conformance with the 1990 Clean Air Act Amendments. The Title V permit application included a detailed emissions inventory, a review of applicable regulations, alternative operating scenarios, and a compliance determination. Resolved several compliance-related issues prior to submittal to the District, which avoided the need to prepare and operate under a compliance plan.

- **Title V Air Operating Permit; Northwest Pipeline Corporation; Washington, Oregon, and Idaho.** Provided technical support in the development of emission inventories, emission calculations, and preparation of permit applications for Northwest's compressor stations. The project required the preparation of 19 compressor station permit applications over three states (Washington, Idaho, and Oregon). The compressor stations included traditional natural gas-fired internal combustion engines and combustion turbine-based compressor stations.

- **Title V Air Operating Permit; Fort Lewis Army Base; Washington.** Assisted in the development of a comprehensive emission inventory for the Fort Lewis Army Base. The emission inventory identified all air pollution sources and emissions. The inventory included hundreds of sources ranging from boilers and incinerators to fugitive dust

sources. Additionally, assisted in preparing the regulatory compliance section of the permit application.

- **Sacramento Army Depot Emission Reduction Credit Analysis; Army Corps of Engineers, Sacramento, California.** Prepared an application documenting the emission reduction credits (ERC) from the closure of the Sacramento Army Depot. The project required several coordination meetings with the local regulatory agency, and to define the potential of claiming ERCs from mobile sources at the installation. The ERC application was prepared and submitted to the local district.
- **Prevention of Significant Deterioration (PSD) Permit Application, Hamakua Cogeneration; Enserch Development Corporation; Hamakua, Hawaii.** Prepared a PSD permit application for the siting of two LM 2500 combustion turbines configured in a combined cycle application. The PSD permit application required the performance of a Best Available Control Technology (BACT) analysis, ambient air quality analysis, and an additional impacts analysis. The BACT and ambient air quality analyses were exacerbated by the fact that only liquid fuel are available at the project site, which required development of defensible arguments to justify the project.
- **Defense Fuel Supply Center (DFSC) - OZOL; U.S. Army Corps of Engineers**. Prepared variance request documentation for the DFSC facility to submit to the Bay Area Air Quality Management District (BAAQMD) for the one-time loading of JP-4 from stores to marine vessels. The variance request was required because the DFSC facility did not have the equipment or permits necessary to perform the loading operations while complying with the BAAQMD regulations.
- **Continuous Emission Monitoring System (CEMS) Project Management; Rhône-Poulenc Basic Chemicals Company, Carson, California.** Managed the specification, vendor selection, installation, and certification of a CEMS for Rhône-Poulenc Basic Chemicals Dominguez Plant located in Carson, California. The CEMS was required by the South Coast Air Quality Management District's Regional Clean Air Incentives Market (RECLAIM) regulations. The project required the preparation of detailed performance specifications (used in soliciting bids from vendors), developing vendor recommendations, coordinating delivery and installation schedules, and managing onsite certification of the CEMS.
- **PiZon Pine Power Project Prevention of Significant Deterioration (PSD) Permit; Sierra Pacific Power Company**. Managed the preparation of a PSD Permit application for the demonstration of an integrated coal gasification combined-cycle power plant. The project required a regulatory review, development of a comprehensive emission database of all emission sources within the area, performance of a BACT analysis, and air dispersion modeling utilizing the EPA's Complex Terrain Dispersion Model (CTDM). Submitted the PSD permit application to the Nevada Division of Environmental Protection to satisfy Nevada's Prevention of Significant Deterioration Permit Program.
- **Modification of a Clark County (Nevada) Health District Air Quality Permit; Saguaro Power Company**. Developed emission limits and conducted negotiations with the Clark County Health District to support a permit modification application. The permit

modification was required after initial emission tests indicated that the facility could not meet the emission limitations contained in the Saguaro Power Company's Agreement to Permit Conditions. Negotiations with the health district were required to support the permit modification effort and to facilitate the approval of the permit modifications with minimal delays.

- **Stockton Cogen; Air Products and Chemicals, Stockton, California**. Managed the permitting and startup of a 49.9-megawatt coal-fired cogeneration facility. Provided logistical support related to the submittal of EPA-required notification, as well as supplying Air Products with technical support on CEMS design and certification. Interfaced with Air Pollution Control Districts, CARB and EPA Region IX offices on behalf of the client.

Membership in Professional Organizations/Societies

Air and Waste Management Association

Training

Environmental Site Assessment Training (1996)
40-Hour Health and Safety Hazardous Waste Operator Training
8-Hour Health and Safety Hazardous Waste Operator Training Annual Refresher (4/97)

Executive Profile

Sacramento Municipal Utility District *Media Services: (916) 732-5111*

Jim Shetler
Assistant General Manager, Energy Supply

James R. Shetler was appointed assistant general manager of Energy Supply on December 16, 2000. He is responsible for overseeing the purchase and sales of the District's gas and electric commodities, the reliability of the transmission system, and the District's electric generating facilities.

Departments under Shetler's direction include Energy Trading and Contracts, System Operations and Reliability, and Power Generation.

Prior to this appointment, Shetler served as assistant general manager of Customer Services and was responsible for overseeing energy and customer services as SMUD prepared to enter the new competitive electricity market. He also served as deputy assistant general manager of Operations. In this position, he was responsible for overseeing the closure and decommissioning of the Rancho Seco Nuclear Generating Station and providing support to the assistant general manager of Operations on other SMUD activities.

Shetler was also Assistant General Manager, Nuclear Support Services at Rancho Seco.

Before coming to SMUD, Shetler was employed at Babcock and Wilcox (B&W), holding the positions of senior engineer, unit manager and product manager.

Shetler holds a bachelor of science degree in chemical engineering from Clarkson College of Technology.

Shetler and his family live in Galt.

The Sacramento Municipal Utility District is the nation's sixth largest community-owned electric system in terms of customers served.

SMUD provides services to more than 500,000 customers (1.2 million residents) over a 900-square-mile area that includes Sacramento County and a small portion of Placer County.

*Visit and bookmark **www.smud.org**, where you'll find energy and safety tips and information about the many programs and services available to SMUD customers.*

SMUD
SACRAMENTO MUNICIPAL UTILITY DISTRICT
6201 S Street, P.O. Box 15830, Sacramento, CA 95852-1830
The Power To Do More.℠

SMUD EXECUTIVE PROFILE

Sacramento Municipal Utility District *P.O. Box 15830* *Sacramento, CA 95852-1830*

Media Services
(916) 732-5111

Colin Taylor
Director of Projects Development

Colin Taylor joined SMUD as Director of Projects Development in August 1991. He manages the development and implementation of SMUD's resource acquisition program, including construction of new generation and transmission resources to meet the district's energy and power requirements.

Prior to SMUD, Taylor was project development manager for ABB Combustion Engineering/Energy Ventures of New Jersey since 1985. Most recently, he managed the development of two major power generation facilities in Asia. He directed the construction and start-up of a $100 million NEPCO cogeneration facility in Pennsylvania, and a 27 megawatt cogeneration facility at the University of California, Berkeley.

Throughout his career, Taylor has been responsible for the development, design, construction and startup of power generation plants including cogeneration, gas turbine, wood burning boilers and other technologies. While working for Kaiser Aluminum, Taylor managed the design of a 100 megawatt powerhouse for an alumina plant in Indonesia and a large industrial boiler facility in Louisiana. With Daniel International, Taylor controlled the construction engineering and scheduling of a 600 megawatt coal-fired power plant in Ohio. Also with that company, Taylor directed project construction engineering on a coal-fired power plant in Georgia. With the Central Electricity Generating Board in England, he worked on projects involving operation and maintenance of a nuclear power plant and the conversion of a coal-fired power plant.

Taylor received his diploma in Mechanical Engineering (the equivalent of a bachelor's of science degree) from Brighton College of Technology in England. He is a Registered Mechanical Engineer in England, where he also earned the titles of M.I. Mech. E. and C.E., which are the the equivalents of certification as a Professional Engineer in the United States.

January 1993

Appendix B

Exhibit List
Group 1

Exhibit List

Exhibit _____ Application for Certification (Volumes 1 & 2)
Exhibit _____ Data Adequacy Supplement
Exhibit _____ Supplement A
Exhibit _____ Supplement B
Exhibit _____ Supplement C
Exhibit _____ Supplement D
Exhibit _____ Data Response, Set 1A
Exhibit _____ Data Response, Set 1B
Exhibit _____ Data Response, Set 1C
Exhibit _____ Data Response, Set 1D
Exhibit _____ Data Response, Set 1E
Exhibit _____ Data Response, Set 1F
Exhibit _____ Data Response, Set 1G
Exhibit _____ Data Response, Set 1H
Exhibit _____ Data Response, Set 1I
Exhibit _____ Data Response, Set 1J
Exhibit _____ Data Response, Set 1K
Exhibit _____ Data Response, Set 1L
Exhibit _____ Data Response, Set 1M
Exhibit _____ Data Response, Set 1O
Exhibit _____ Data Response, Set 2A
Exhibit _____ Data Response, Set 2B
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Exhibit _____ Data Response, Set 2D
Exhibit _____ Data Response, Set 3A
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Exhibit _____ Data Response, Set 3C
Exhibit _____ Data Response, Set 3D
Exhibit _____ Data Response, Set 3E
Exhibit _____ Data Response, Set 3F
Exhibit _____ Data Response, Set 3G
Exhibit _____ Data Response, Set 3H
Exhibit _____ Data Response, Set 3I
Exhibit _____ Data Response, Set 3J
Exhibit _____ Data Response, Set 3K

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Exhibit _____ Data Response, Set 3M

Exhibit _____ Data Response, Set 3N

Exhibit _____ Data Response, Set 3O

Exhibit _____ Data Response, Set 3P

Exhibit _____ Data Response, Set 4A

Exhibit _____ Data Response, Set 4B

Exhibit _____ Informal Data Response, Set 1

Exhibit _____ Informal Data Response, Set 2

Exhibit _____ Informal Data Response, Set 3

Exhibit _____ Informal Data Response, Set 4

Exhibit _____ Informal Data Response, Set 5

Exhibit _____ Informal Data Response, Set 6

Exhibit _____ Informal Data Response, Set 7

Exhibit _____ Informal Data Response, Set 8

Exhibit _____ Informal Data Response, Set 9

Exhibit _____ Informal Data Response, Set 10

Exhibit _____ Informal Data Response, Set 11

Exhibit _____ Informal Data Response, Set 12

Exhibit _____ Informal Data Response, Set 13 Revised

Exhibit _____ Informal Data Response to Richard Latteri dated 5-2-02

Exhibit _____ Data Response Kathy Peasha, Set 1

Exhibit _____ Data Response Kathy Peasha, Set 2

Exhibit _____ PSA Comments, Set 1

Exhibit _____ PSA Comments, Set 2

Exhibit _____ PSA Comments, Set 3

Exhibit _____ PSA Comments, Set 4

Exhibit _____ Prehearing Conference Statement, Exhibit A

Correspondence

Exhibit _____ Letter dated July 24, 2001 from Sierra Research (Tom Andrews) to SMAQMD (Brian Krebs) re: Modeling Protocol for Cosumnes Power Plant

Exhibit _____ Letter dated September 13, 2001 from SMUD (Colin Taylor) to SMAQMD (Norman Covell) re: Application for Determination of Compliance and Authority to Construct (Docket #22254)

Exhibit _____ Letter dated October 12, 2001 from SMUD (Colin Taylor) to SMAQMD (Brian Krebs) re: Application for DOC/ATC – Request for Extension to the Application Completeness Determination

Exhibit _____ E-mail dated October 31, 2001 from Sierra Research (Gary Rubenstein)

Exhibit List

to CEC (Tuan Ngo) re: Clarifying Information Related to Emission Offsets (Docket #23014)

Exhibit _____ Letter dated October 25, 2001 from Sierra Research (Gary Rubenstein) to SMAQMD (Aleta Kennard) re: interpollutant trading ratio analysis

Exhibit _____ Letter dated December 3, 2001 from Sierra Research (Tom Andrews) to SMAQMD (Brian Krebs) re: protocol for evaluating PM10 emission reductions for road paving programs

Exhibit _____ Letter dated December 5, 2001 from Sierra Research (Gary Rubenstein) to SMAQMD (Brian Krebs) re: interpollutant trading analysis (Docket #24066)

Exhibit _____ Letter dated December 10, 2001 from Sierra Research (Gary Rubenstein) to SMAQMD (Brian Krebs) re: modeling protocol for ozone sensitivity simulation

Exhibit _____ Letter dated December 13, 2001 from Sierra Research (Gary Rubenstein) to SMAQMD (Brian Krebs) re: distances to ERC sources (Docket #23621)

Exhibit _____ Letter dated January 9, 2002 from Sierra Research (Gary Rubenstein) to SMAQMD (Aleta Kennard) re: revised protocol for evaluating PM10 emission reductions for road paving programs

Exhibit _____ Letter dated January 11, 2002 from Sierra Research (Nancy Matthews) to SMAQMD (Jim Jester) re: public information request related to cumulative air quality impacts analysis

Exhibit _____ Letter dated January 30, 2002 from Sierra Research (Gary Rubenstein) to SMAQMD (Brian Krebs) re: interpollutant offset ratio (Docket #24680)

Exhibit _____ Letter dated March 4, 2002 from Sierra Research (Gary Rubenstein) to SMAQMD (Brian Krebs) re: results of ozone sensitivity simulations (Docket #24779)

Exhibit _____ Letter dated March 18, 2002 from SMUD (Stuart Husband) to SMAQMD (Krebs) transmitting AFC Supplement A (transmittal letter only)

Exhibit _____ Letter dated April 4, 2002 from Sierra Research (Gary Rubenstein) to SMAQMD (Aleta Kennard) re: SOx to PM10 interpollutant offset ratio

Exhibit _____ Letter dated April 12, 2002 from Sierra Research (Tom Andrews) to SMAQMD (Aleta Kennard) re: Application for PM10 Emission Reduction Credits for a Road Paving Program

Exhibit _____ Letter dated April 12, 2002 from Sierra Research (Gary Rubenstein) to CEC Dockets Office transmitting modeling files on CD-ROM related to AFC Supplement A (Docket #25285)

Exhibit _____ Letter dated April 26, 2002 from SMUD (Stuart Husband) to SMAQMD (Aleta Kennard) re: Placer County APCD Approval of Inter-District ERC Transfer (Docket #25499)

Exhibit _____ Letter dated June 12, 2002 from Sierra Research (Gary Rubenstein) to SMAQMD (Aleta Kennard) re: updated summary of emission reduction credits (Docket #25931)

Exhibit _____ Letter dated June 19, 2002 from Sierra Research (Tom Andrews) to SMAQMD (Sam Maani) re: comments on road paving emission reduction credits

Exhibit List

Exhibit _____ Letter dated September 27, 2002 from SMUD (Stuart Husband) to CEC (Kristy Chew) transmitting comments on the PDOC (Docket #26822) Additional Materials Prepared by Others

Additional Materials Prepared by Others

Exhibit _____ Letter dated October 12, 2001 from SMAQMD (Brian Krebs) to SMUD (Colin Taylor) re: Request for Extension

Exhibit _____ Letter dated May 20, 2002 from SMAQMD (Sam Maani) to SMUD (Stuart Husband) re: preliminary decision to approve emission reduction credit applications

Exhibit _____ June 28, 2002 Draft Preliminary Determination of Compliance Issued by SMAQMD (Docket #26119)

Exhibit _____ Letter dated August 13, 2002 from SMAQMD (Aleta Kennard) to EPA Region IX (Manny Aquitania) responding to EPA comments regarding road paving ERCs

Exhibit _____ Letter dated September 30, 2002 from EPA Region IX (Gerardo Rios) to SMAQMD (Jorge DeGuzman) re: comments on PDOC (Docket #26881, #26982)

Exhibit _____ October 21, 2002 Final Determination of Compliance issued by SMAQMD

Exhibit _____ Letter dated October 10, 2002 from SMAQMD (Jorge DeGuzman) to EPA Region IX (Gerardo Rios) responding to EPA comments on PDOC

Exhibit _____ The 2002 California Almanac of Emissions and Air Quality, California Air Resources Board (April 2002) http://www.arb.ca.gov/aqd/almanac/almanac02/pdf/almanac2002all.pdf

Exhibit _____ Ozone data from California Air Resources Board web site (http://www.arb.ca.gov/adam/cgi-bin/db2www/polltrends.d2w/start)

Exhibit _____ PM10 data from California Air Resources Board web site (http://www.arb.ca.gov/adam/cgi-bin/db2www/polltrends.d2w/start)

Exhibit _____ http://www.airquality.org/cleanairplan/cleanairplan.htm#whatshappening